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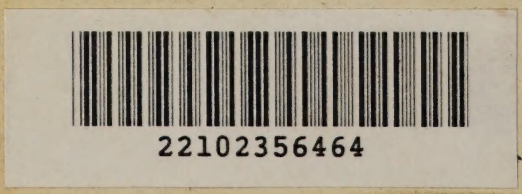

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THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

JULY 2, 1877.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Tuberculosis.*[a] By ARTHUR WYNNE FOOT, M.D., Univ. Dubl.; F.K.Q.C.P.; Senior Physician to the Meath Hospital and County of Dublin Infirmary; Diplomate in State Medicine, Trin. Coll. Dubl.

MR. PRESIDENT, FELLOWS OF THE COLLEGE, AND GENTLEMEN,—It occurs to me that it would be but becoming that I should preface these observations with an apology for having selected a subject so important as that of "Tuberculosis" for a discourse before an assembly like the present. Unfortunately I have no better excuse to offer for my temerity than that it is a subject in which, both from a personal wish to learn and from a sense of the responsibilities of a teacher, I have long taken a deep interest.

The consideration of tuberculosis will, on the present occasion, be confined to its manifestations in the lungs, because the main interest of the subject centres itself in the question of pulmonary phthisis, with which the idea of tubercle has been associated since pathological anatomy has existed. It is necessary, at the outset, to state distinctly that the term tuberculosis has been intentionally selected, as representative of the modern opinion, based on anatomical facts, which regards the essential

[a] Two Lectures delivered before the King and Queen's College of Physicians in Ireland, on February 19th and 26th, 1877, being the fifth and sixth of the Annual Scientific Lectures for 1877.

lesions, both in the disease known to all as acute pulmonary tuberculosis, and in the more common malady, chronic consumption of the lungs, as originally identical in their seat and nature. By the term tuberculosis—first employed by Schönlein in the third decade of the present century[a]—is meant a certain morbid state of the liquids of the organisation, which often spreads through the body from a single point, but which may perhaps in some cases be congenital.[b] This morbid state finds its anatomical expression in the growth called tubercle. This tubercle or tubercular granulation, under some one or other of its forms, constitutes the characteristic and fundamental lesion in acute or chronic phthisis; and hence has arisen the necessity of once more enlarging the domain of pulmonary tuberculosis from the somewhat narrow limits within which, subsequent to the time of Laennec, it has come to be circumscribed.[c]

Strange as it may appear to any who are accustomed to use the word in a loose or careless way, the difficulty of giving a definition of "tubercle" is unquestionably great; and yet there is no pathological point as to which, in the interest of mankind, a certain degree of unanimity of meaning is more earnestly to be desired. This difficulty arises not only from the fact that any specific structural element which may exist in tubercle has hitherto eluded discovery, but also because even the naked-eye appearances of the growth differ widely according to its size, its age, and its capability of being isolated from the results of its presence in the tissues. To an ordinary observer the description of tubercle as it appears in the grey granulation of acute disseminated miliary tuberculosis will not apply to it in its more mature development in chronic tuberculosis, or when surrounded with its satellite form of pneumonia. This variability in size, colour, and consistency, precluding a description which will apply to tubercle, even macroscopically, under all conditions whatsoever, has largely contributed to the confusion almost inseparably associated with the use of the word—a confusion so great that the term has been spoken of as if it were the pest of pathological language, and attempts have been made to ostracise it completely from medical use. But new names for tubercle have hitherto had to struggle, and that without any very marked success, against the chilling disadvantages of juniority.

[a] Wagner. Man. Gen. Path. 1876. P. 444.
[b] Rindfleisch. Man. of Path. Hist., Syd. Soc. 1872. Vol. I., p. 136.
[c] See Rindfleisch. Cycl. Pract. Med., Ziemssen. 1875. Vol. V., p. 633.

The name proposed by Fuchs for grey tubercle, that of Phyma, signifying the thing grown, is hardly ever heard of. The term Granulia, invented by Empis,[a] advocated strongly by Bastian,[b] and adopted by Aufrecht[c] and others, is more frequently met with in medical literature, but it is hard to see what other effect its employment can have than to increase the synonomy of the already perplexing nomenclature of tuberculosis. The word tubercle seems determined to maintain its ground with such a stubborn resistance that it would appear wiser to try to agree as to the significance to be attached to it than to attempt to pitchfork it out of the medical vocabulary. It seems to have been in use in pulmonary pathology from the time of Franciscus Delaboe Sylvius,[d] who, in 1695, was the first to recognise, along with the suppurations and ulcerations of the lungs, the existence of nodes, from the softening of which cavities arise, and who speaks of larger and smaller tubercles.

The evolution and the metamorphoses of tubercle are certainly so far latent to the unassisted eye, that the mere morbid appearances, the mere naked-eye characters, will not suffice whereon to frame a definition, although the keen inductive faculty of early observers did not fail to foreshadow some of the modern microscopic discoveries about it; yet the histologists are not more fortunate when they attempt its definition from their peculiar stand-point than have been the pathological anatomists. The small-celled growth, called lymphoid or adenoid (from its being a tissue resembling the pulp of the cortical substance of a lymphatic gland), and which is so constant a microscopical feature of recent tubercle, is a histological product common also to other chronic inflammatory processes, and may be found in the base of a hard chancre, as well as in portions of the indurated tissue of a cirrhosed liver. It is also generally admitted that similar growths, in no way to be distinguished from tubercle histologically, are to be met with in the organs of persons suffering from leukæmia and from enteric fever; and it is from a certain constancy of this feature of resemblance in these different growths that Virchow[e] classes such small-celled tumours of minute size together with tubercle under the head of lymphomata. It is not for a moment to be supposed that histolo-

[a] Empis. De la Granulie. 1865.

[b] Bastian. Trans. Path. Soc., Lond. 1873. Vol. XXIV., p. 330.

[c] Aufrecht, Die chron. Bronchopn. und die Granulie. 1873.

[d] Ruehle. Cycl. Pract. Med., Ziemssen. 1875. Vol. V., p. 477; and see Virchow (Path. des Tum.), Vol. III., p. 68.

[e] Virchow. Path. des Tumeurs. 1871. Vol. III., p. 3.

gical resemblance or similarity implies a future identity in evolution, for no one would argue that the embryonic cells of a whale were really identical with the embryonic cells of an oyster, because microscopically they were not distinguishable at a certain stage of their existence. In the earliest periods of growth it is often impossible to differentiate one bioplasm from another. But an every-day illustration of the structural similarity between tubercle and other formations is found in the impracticability of distinguishing tubercle by histological means alone from the small-celled adenoid masses which enter into the composition of the malpighian tufts of the spleen.

The chemical pathologists have, in their turn, entertained peculiar views of tubercle, supposing it to fall as a precipitate from the lymph while this is still within the lymphatic vessels, and in parts where lymph and blood are first exposed to increased oxidation.

Notable have been the successive failures to invest tubercle with specific properties or elements. Laennec's idea that cheesy degeneration was a characteristic feature of the growth in its adult life, had to be discarded, or at all events greatly modified, when it became known that other products of entirely different nature, such as pus, sarcoma, &c., were subject to this form of necrosis. The tubercle-corpuscles of Lebert, described in 1844 under the impression that they were specific elements, have shared the same fate as his specific cancer-cell. As early as 1847 Reinhardt had shown that the so-called tubercle-corpuscles might originate from pus cells, and had thereby deprived them of their specific importance. The large multinucleated or giant-cells, with which Schüppell's[a] name is so intimately connected, and which were even recently supposed to be pathognomonic of the tubercular granulation, are now known to exist in other and widely different structures. And lastly, with regard to the inoculation experiments, which at first seemed to prove even the transmissibility of a special virus, one of their chief values has been their having led to the discovery that there is nothing essentially specific in tubercle.

There are not then, as yet, any anatomical, histological, or chemical criteria sufficiently constant to base thereon singly a definition of tubercle which shall be adequate and complete, and in our present state of knowledge it is premature to make the attempt. Neither to the scalpel, the microscope, or the laboratory has the tubercular granulation as yet revealed any such uniqueness of

[a] Schüppell. Untersuchungen über Lymphdrüsen-Tuberkulose. 1871.

structure or property as will serve to stamp it with an individuality and discriminate it from every other new formation. The consequences of this inability to frame an abstract definition of tubercle are not so disastrous as the captious questioner of what *is* a tubercle may think. The anatomical and vital characters of tubercle, taken collectively, and intelligently judged of, are, although not specific, distinct enough to characterise the formation. It is quite possible to be well aware whether the lungs are tuberculous or not, without having such doctrinal or dogmatic definitions of tubercle as will satisfy every inquirer, however informed. The single tubercle or the tuberculous tumour in a state of isolation is not capable of identification in virtue of any one element entering into its composition; but its origin, its development, and its minute structure studied together in a broad, common-sense manner, confer a particular stamp upon it, as a whole, which renders it capable of distinct recognition.[a] An abridged description, an epitome of its life-history, must satisfy those who clamour for a logical definition of tubercle. It is unnecessary, even if it were practicable, to do more, because it is possible to describe a certain product as unequivocally tubercular, by taking into consideration all the circumstances of its origin and progress, its distribution, seat, and structure, its concomitant symptoms, and its termination.

There are certain difficulties in the practical anatomy of phthisical lungs which can be remedied only by some acquaintance with the vital history of the tubercular granulation. Thus it is necessary to bear in mind that the grey, semi-transparent granulation, the most obviously characteristic phase of tubercle, is only an early stage of the growth;[b] otherwise one who is wont to form his opinion that a lung is tuberculous solely from the presence therein of the grey granulation, may be looking at a tuberculous lung and yet see no tubercle, because he has arbitrarily selected a particular phase of the growth as his criterion of its presence. It is true that the grey granulation, although by no means the sole condition in which tubercle may occur, embodies its most distinctive character to the naked eye; it is also under such a form that tubercle is most commonly met with in the cases of acute disseminated tuberculosis, about the nature of which there is little difference of opinion; and, furthermore, this tendency to withhold the name of tuberculosis, unless the grey granulation can be seen with the naked eye, is

[a] Southey. Nat. and Affinities of Tubercle. 1867. P. 12.
[b] Virchow. Path. des. Tum. 1871. Tome 3, p. 74.

greatly due to the influence of Rokitansky's[a] earlier teaching, in which he declared emphatically his dissent from the opinion that grey tubercle, the grey tuberculous granulation of Laennec, softens. It is now well established that the grey granulation is quickly destined to undergo changes in its colour, consistence, and composition. In its early stages miliary tubercle is identical in all the organs in which it is met with, but its subsequent appearances essentially depend upon its development, period of maturity, and complicity with secondary results. The grey granulation, in consequence of the extreme perishability, and of the very limited viability of its living elements, as a rule, regularly undergoes the caseous metamorphosis and subsequent softening, so that it is necessary to bear in mind this frequent change, and to recollect that young tubercle comports itself differently from older tubercle, that the former is viable and living, the latter often only detritus and disorganisation. This necrosis and fatty change in the older tubercle is, as was just now observed, connected with the eminently feeble vitality of its corpuscular elements, tubercle being, in Virchow's[b] words, always a pitiful production, a new formation from its very outset miserable; it is, however, also partly due to insufficient nourishment of the growth through the vessels round it. It is well known that it is impossible to inject a real tubercle, and that there are never blood-vessels containing blood within one, which is one of the reasons for the pale, semi-transparent appearance of the fresh granulation. The capillaries of a tissue in which the tubercular nodule is being formed become gradually obliterated in the process of its growth, and there is no new formation of vessels such as takes place in more highly developed inflammatory tissue.[c] The obliteration or destruction of the blood-vessels in tissues which are the seat of tubercle depends upon the enormous new-formation of nuclei around the capillaries, as well as upon the increase of nuclei which takes place in the walls of the vessels themselves.[d] At what age the tubercle begins to undergo its retrogressive changes has not been determined; for the most part, a few weeks appear to suffice to call it forth, at least in the centre of the tubercle, while at other times months are necessary.[e] Besides the more usual caseous change, the tubercular granulation is also subject to a

[a] Rokitansky. Path. Anat., Syd. Soc. 1854. Vol. I, p. 296.
[b] Virchow. Cell. Path. (Chance). 1860. P. 477.
[c] Green. Path. and Morb. Anat. 1875. 3rd ed., p. 234.
[d] Wagner. Man. Gen. Path. 1876. P. 450.
[e] Wagner. Op. cit. P. 464.

metamorphosis into fibrous tissue. Fibrous tubercle is, according to some, a peculiar form of tubercle, according to others only a transformation of it. Virchow distinguishes fibrous from common cellular tubercles; according to Langhans the former, or fibrous tubercle, is a more highly developed form of cellular tubercle, while, according to Schüppel, fibrous is a metamorphosis of common tubercle.[a] There is, moreover, that condition of miliary tubercle called cornification, which is effected by simple atrophy of the nuclei alone (without simultaneous fatty metamorphosis), whereby the tubercle is transformed into a hard, horny mass.[b] The physical variations, then, to which the grey granulations are subject cause a difficulty of recognising evidences of their presence in chronic tuberculosis to those who know of them only in one stage, and that not the most frequently met with, of their existence. They cause, also, the more excusable difficulty of distinguishing tubercle in ts latter end from products of different origin.

Furthermore, when engaged in demonstrating the pathological anatomy of phthisis, it is to be recollected that the tubercular granulations, even in the localised form of distribution, present themselves under two conditions as to propinquity—isolation and confluence; and that when they are confluent they no longer appear as discrete nodules, distinct from one another, but form, according to their age and degree of agglomeration, yellowish or whitish yellow masses of the size of a pea, a hazel nut, or a walnut, which it may be impossible with the naked eye to discriminate from every focus of cheesy inflammation. It is true that Laennec had already named these coalescent tubercles as tuberculous infiltration, but Reinhardt's[c] opinion that infiltrated tuberculosis was nothing more than one of the forms presented by inflammatory products when undergoing transformation, and Virchow's too rigid restriction of the term tubercle to the grey granulation, were adopted by the majority, and the vindication of the truth of Laennec's views was left for later times. When a caseous mass of supposed confluent tubercle is presented to our notice in the lung, we are justified in deciding upon its pathological nature only from our knowledge of its mode of origin. This knowledge is to be sought for not merely by examination of the mass alone, but of adjacent parts as well as distant parts taken in connexion with the history of the patient,

[a] Wagner. Op. cit. P. 446.
[b] Wagner. Op. cit. P. 447.
[c] Virchow. Cell. Path. (Chance). 1860. P. 474.

and of the course and progress of the disease. It is otherwise often hardly possible to predicate of a caseous mass whether its origin was or was not tubercular.

Again, in examining the lungs of tuberculous patients, the fact is sometimes overlooked that the smallest forms of tubercle are not visible to the naked eye. The term miliary is a conventional one, conveying a definite idea of size, that of a millet seed, to which Mangetus,[a] as early as 1700 compared the tubercles he found in the lungs and other organs; but there are tubercles as genuine, much smaller. Virchow has already demonstrated that tubercles as large as a millet seed are infrequent, while those of the size of a *poppy* seed are much more common. He has shown that the smallest nodules visible with the naked eye are made up of yet smaller nodules, the submiliary tubercles. These measure from one-fifth to one-seventh of a millimetre in diameter, so that from forty to fifty of them must be conglomerated to make a nodule as large as a poppy seed. While there are no limits to the size which may be attained by the agglomeration of submiliary tubercles—witness the solitary tubercle of the brain, which may occupy one half of the cerebellum—and while tubercle can exist invisible to the naked eye, it is evidently highly unsafe to assume any particular *size* of tubercle as a criterion, or to hastily assume, without a careful microscopical examination, that the lung is free from such a growth, because there are no miliary granulations apparent, no tubercle *visible* to the naked eye.

It is almost needless to remind those who are at all familiar with the manipulation of tuberculous lungs of the intrinsic difficulties of examining these organs, independently of the arduous task of detecting tubercle which may be invisible to the naked eye, disguised under some of its metamorphic conditions, or concealed among the secondary results of its presence. The anatomical peculiarities of the lungs are such as eminently favour the more or less simultaneous occurrence of different kinds of lesions under the agency of inflammatory or irritative influences. Thus, in examining tuberculous lungs, besides the initial and characteristic lesions—the tubercular granulations, we must be prepared to meet, however short a time the disease has lasted, with inflammations common and special of the bronchi, the air-vessels, the pleuræ, and of the lymphatic glands. These different lesions, consecutive to the tubercular granulation, may even become predominant in an anatomical

[a] Ruehle. Cycl. Pract. Med. Ziemssen. 1875. P. 477.

and clinical point of view. This series of changes in tissues surrounding tubercles is dependent upon the quick formation of the tubercle, upon the obliteration of the capillaries, upon the continuance of the small-celled growth on the sheath of surrounding blood-vessels, upon the frequently occurring collateral hyperæmia and hypertrophy of the surrounding tissues, and upon the retrograde metamorphosis of the tubercle itself.[a] In short, excluding cancer, the lung in phthisis may offer a compendium of all the pathological accidents to which that organ is liable; and differences thus arise enough to confuse those who seek for variety, while meantime in all cases the initial and leading features of the disease are identical.[b]

What I have been endeavouring to convey is that in the varying characters of the tubercular granulation, according to the period of development at which it presents itself, and in the intrinsic difficulties of pulmonary examinations—such examinations requiring pathological and histological skill of no ordinary degree for their perfect accomplishment, lie two of the chief causes of the perplexity which surrounds the subject of tuberculosis of the lungs. Superadded to these, but of minor consequence because they do not of necessity hamper an independent observance of facts, are the number of conflicting opinions and theories constructed for the support of hypotheses which do not stand on an anatomical basis, and the embarrassing nomenclature with which the subject is invested. There is not perhaps, as Virchow[c] observes, in the whole range of medicine, a subject in which the want of a precise terminology has worked, and to the present day continues to work, such confusion.

Another difficulty, but of a different kind, in the pathology of tuberculous lungs is connected with the interpretation of those diffuse lobular or lobar consolidations which Laennec[d] described as tubercular infiltrations, and of which he indicated three varieties, the irregular, the grey, and the yellow. Laennec[e] merely stated that the tubercular infiltration, or interstitial injection as he also calls it, is one of the two principal forms under which the matter of tubercle may be developed in the lungs, the other being that of insulated tubercles. He entirely repudiated its connexion with inflammatory processes, remarking that the grey tuberculous infil-

[a] Wagner. Op. cit. P. 449.
[b] Wilks and Moxon. Lects. on Path. Anat. 1875. P. 621.
[c] Virchow. Path. des Tum. 1871. Vol. III., p. 66.
[d] Laennec. Dis. of Chest. (Forbes) 1827. P. 272.
[e] Laennec. Op. cit. Pp. 272 and 290.

tration (the earlier stage of the yellow) had been of late years, mistaken by inexperienced observers for chronic peripneumony. He alludes to the views of Broussais, who maintained the older opinion that tubercles are a consequence of inflammation, as being founded more on assertion and inference than on facts.

In the year 1850, twenty-four years after the death of Laennec—for Laennec died of phthisis 13th August, 1826, in the forty-fifth year of his age—appeared Reinhardt's[a] work, which was the result of the application of the microscope to these tubercular infiltrations. The great merit of this work was the establishment of the fact that the major part of the consolidations known as grey and yellow infiltrations were due to intra-alveolar and interstitial lesions, the result of pneumonia, and so far he brought histological evidence to support the opinion of Broussais that tuberculosis was only a particular form of pulmonary inflammation—the very view which Laennec had so rigorously combated. But Reinhardt's conclusions were not free from the errors which ever dog the slow advance of scientific progress. He denied the transformation of the grey into the yellow infiltration, and seems to have overlooked the existence of the grey granulation or typical tubercle.[b] Virchow soon followed, correcting Reinhardt's mistakes, maintaining the importance of the pneumonic process, rigidly restricting the tubercle to the typical grey miliary granulation, and altering the nomenclature of Laennec. What had hitherto been called tuberculous matter was now called caseous matter; and tuberculisation, or that condition which brings about tubercular infiltration, was called caseation, and the peculiar pneumonia now known to accompany the phthisical processes was called caseous or scrofulous pneumonia. The tubercular element was completely subordinated to the inflammatory processes. Virchow had taught that the caseous metamorphosis, the hitherto-called tuberculisation, which Laennec regarded as a special attribute of tubercle, was to be looked on as a general process of necrobiosis in all tissues and exudations. Virchow's teaching that all cheesy matter is not tubercular has, from the preponderating influence of such a master, been since pushed to so dangerous an extreme, that many are even disposed to doubt the tubercular nature of any caseous matter, whereas, on the contrary, tubercle is one of the

[a] Reinhardt. Étude sur l'identité des dépôts tuberculeux avec les produits inflammatoires.

[b] Lépine. De la Pneumonie Caséeuse. 1872. P. 13.

most frequent although not the sole cause of such productions in the body.

In the diffused consolidations of the lungs, called tubercular infiltration by Laennece much of the caseous matter is unquestionably pneumonic, the result of pneumonia running a particular course in the presence of tubercle. It is the presence of the tubercular growth which gives to phthisical pneumonia that characteristic tendency to caseation which does not occur in ordinary acute inflammation of the lungs, or in broncho-pneumonia uncomplicated with tubercle. This combination of inflammation and tuberculosis, which comports itself differently from ordinary pneumonia on the one hand and from mere tuberculosis on the other, is characterised pathologically as well by the tendency to caseation exhibited by the combination of the pneumonic products and the tubercle, as by the tubercular development which can be discovered thereabouts when properly looked for. The combination of inflammation with tuberculosis is recognised in other organs, and is implied by the names in common use, such as tubercular meningitis, tubercular arthritis,[a] pleuritis, epididymitis. Inflammation in such cases is characterised by new formation of connective tissue, which is met with either in the form of granulation-tissue rich in cells, or which is poor in cells, and of older date. There lie imbedded therein tubercles of submiliary or microscopic size, which may also by agglomeration reach the size of a pea and larger; in the former case they are fresh and grey, in the latter older and yellow. The abundant nuclear and cell-formation arising under the influence of inflammation in persons affected with tuberculosis very soon suffers cheesy metamorphosis, and assumes a molecular state, whereby destructions of membranes or parenchymata ensue; in the former case leading to the tubercular ulcerations, in the latter to tubercular cavities. In a large proportion of cases in which extensive tracts of the lung are found completely caseous, the condition of the parts is due to tubercular pneumonia—that is to say, to pneumonia complicated with a growth analogous to that existing in the granulations found in acute tuberculosis.[c] Anatomically pneumonia is not tubercular unless this growth co-exists in the alveolar walls. Whenever this growth is traced in the walls of the air-vesicles the capillary circulation is found to cease, and even in a non-injected specimen it can

[a] Roux. De l'arthrite Tuberculeuse. 1875.
[b] Wagner. Man. Gen. Path., 1876. Pp. 285 and 450.
[c] Wilson Fox. Trans. Path. Soc. Lond. 1873. Vol. XXIV. p. 296.

be seen that there are no capillaries there, and that the tubercular growth is occupying their places, whereas in pneumonia uncomplicated with tubercle the capillaries are present. The implication of the alveolar walls to an extent, or for a length of time insufficient to produce the death of the tissues concerned, yet gives them a resistance and at the same time an exsanguine appearance which constitutes the grey infiltration of Laennec. The yellow infiltration is the same thing plus caseation, the anatomical sign of chronicity.

The phrase "caseous" or "scrofulous pneumonia" was one invented by Virchow to suit cases of diffuse caseation (Laennec's tubercular infiltration) which did not readily present the grey miliary granulation which Virchow selected as the typical tubercle. It is intended to apply to a form of pneumonia quite independent of tubercle, and from the obviously destructive nature of this form of pneumonia it has led to the dualistic view that there are two forms of phthisis capable of disintegrating the lungs, a tubercular phthisis and a pneumonic phthisis. The reality of any pneumonia other than tubercular, deserving the name of scrofulous or caseous, is keenly questioned by many modern authorities. Ranvier,[a] probably the most recent writer on the subject, states that he does not know of a well-marked case of caseous pneumonia in which he has not been able to find recognisable tubercular granulations. Although it may not be possible to discover the granulations in the actual cheesy mass, because of their having participated in its general caseation, they may always or almost always be plainly seen upon careful examination of other parts of the lung, or upon the pleura; if the visceral lamina of the pleura does not show them the parietal layer may, or they may be found on the peritoneum, or in other organs. The doctrine of a caseous pneumonia and its corollary pneumonic phthisis, seems to be based upon an arbitrary limitation of the term tubercle to that particular stage and form in which it is well enough named the grey, semi-transparent granulation, and upon an exaggerated view of the origin of caseation in simple inflammatory products. Those who regard the grey granulation as the sole form of tubercle, and who find caseous masses in the lungs presenting none of these tubercles, and who are at the same time aware that caseation is not peculiar to tubercle, and who observe the vomica formation in progress in the older masses, can hardly be blamed for adhering to the opinion that there is a pneumonic phthisis.

[a] Ranvier. Man. d'hist. Path. 3me partie. 1876. P. 731.

While, on the other hand, those who recognise submiliary tubercle or forms of it other than the grey granulation in or about the periphery of the masses, and who accept the fact of caseation to be the very criterion that the pneumonia has been modified in its pathological features by tubercular development, speak of the cheesy masses as tubercular pneumonia, and preserve the unity of the disease as laid down by Laennec, subject merely to the corrections which his pathology has had to submit to. For Laennec these masses were infiltrated tubercle, for us they are tubercle *plus* the products of pneumonia modified in its pathological characters by the co-existence of tubercle.

It may be said that the tubercular growths frequently found in the immediate vicinity of a softened caseous product are the result of infection from a patch of cheesy pneumonia not originally tubercular, for there is little doubt that the detritus of any inflammatory product is capable of producing tubercle locally or generally. This view is forcibly expressed by Niemeyer,[a] when he says that any unprejudiced observer reflecting on the occurrence of miliary tubercles side by side with consolidated and destroyed portions of the lungs, must come to the conclusion "that the tubercles in the majority of cases are clearly of recent origin, and have complicated the pulmonary phthisis when it was already in an advanced stage." But Ranvier[b] considers that this condition of things, the appearance of tubercle in the neighbourhood of a softened caseous mass, may be more naturally explained by regarding it as evidence that the younger and peripheral portions of the mass are similiar to what the older and more central parts, now unrecognisable in their degenerated stages, formerly were. When the same appearances of central decay present themselves in the older portions of other tumours, whose growth, like that of tubercle, is by peripheral additions, we are not accustomed to regard the recent outlying portions of the tumor, still fresh and capable of identification, as different from the central parts merely because the latter happen to have undergone their inevitable retrogressive metamorphoses.

In his recent researches upon the pathological anatomy of tuberculosis, Thaon[c] comes to the conclusion that it is proved that there is no essential caseous pneumonia other than tubercular; that caseous inflammations in the lung are as much manifestations of

[a] Niemeyer. Clin. Lect. on Pulm. Consump., Syd. Soc. 1870. P. 4.
[b] Ranvier. Man. d'hist. Path. 1876. 3me Partie., pp. 732, 733.
[c] Thaon. Rech. sur. l'Anat. Path. de la Tuberculose. 1873. P. 43.

tuberculosis as are the tubercular granulations; that such inflammations are always found mixed with the granulations—they reproduce the granulations, and have often special characteristics from their beginning, in their appearance and localisation, in their macroscopic and microscopic features. As the condyloma and the gumma are evidences of syphilis of equal rank with the chancre, so are the grey granulation and the caseous pneumonia equivalent indications of tuberculosis. Either of these products may appear alone; when the grey granulation is the sole manifestation of tuberculosis we have true examples of the disease for which Empis has proposed the term Granulia; if the caseous pneumonia appears alone (which he admits to be possible, although he has never seen it so), he holds that equally as in the former case the person is tuberculous. The term tubercular pneumonia is now in every-day use, and the extensive application of Addison's[a] proposition becomes more and more apparent, that "inflammation constitutes the great instrument of destruction in every form of phthisis." Rindfleisch[b] has no objection to Virchow's designation of cheesy pneumonia or cheesy broncho-pneumonia, but would much prefer to add the name tubercular, from a recognition of the important parts in this complicated condition played by tubercular ulceration of the bronchial mucous membrane, and by tubercular peri-bronchitis, for manifestations of tubercle in the bronchial mucous membrane and in the peribronchial lymphatics are associated with the tubercular pneumonia. The more minute anatomy of tubercular pneumonia has been especially studied by Buhl, and his observations are calculated to explain the progress of some of the more rapid forms of phthisis. According to Buhl,[c] the tubercular pneumonia proceeds neither from catarrhal nor from croupous pneumonia, but from the form which he describes as desquamative. This pneumonia is characterised by new-formation of nuclei and cells in the inter-alveolar tissue, in the adventitia of vessels, and in the external layer of the small bronchi and bronchioles on the one hand, and by desquamation or shedding of the increased pulmonary epithelium on the other, both sets of elements undergoing cheesy metamorphosis. Desquamative pneumonia joins together the looser products of tubercular bronchitis and peribronchitis into the compact caseous nodules which are the natural products of tubercular pneumonia. The alveoli are filled with large

[a] Addison. Works Syd. Soc.. 1868. P. 64.
[b] Rindfleisch. Cyclop. Pract. Med., Ziemssen. 1875. Vol. V., p. 661.
[c] Wagner. Man. Gen. Path. 1876. P. 450.

epithelial cells formed by a desquamation and progressive degradation of the pulmonary epithelium.

The tendency, then, of modern opinion is to regard the infiltrated tubercle of Laennec as principally indebted for its characters to causes of an inflammatory nature, to consider it as the result of tubercular pneumonia—pneumonia complicated—and leaving the cheesy stamp in consequence of that complication with tubercle.

The *original seat* of pulmonary tubercle is variable. In the first place, it may appear in connexion with the capillary vessels when it forms a growth of embryonic elements in their adventitia and the adjacent connective tissue. The new tissue is continuous with the thickened walls of neighbouring alveoli. The combination of these lesions of the parietes of the vessels and of the alveoli constitutes often a nodule. Tubercle may also originate around the bronchi, and then the adventitia of the peribronchial vessels takes part in the new-formation, as well as the bronchial connective tissue. A third situation for the first appearance of tubercle, and that which is the most common and characteristic, is in a pulmonary infundibulum, all of whose alveoli are filled with the new formation. The source of the elements of the tubercle in this latter case, when they fill the lumina of the alveoli, whether they are derived from the inter-alveolar septa, or are due to proliferation of the alveolar epithelium, or are derived from emigrant white-cells, is a question of great difficulty, and it is quite possible that these three modes of formation may co-operate simultaneously.[a] It makes a considerable difference whether the tubercular development preponderates as an interstitial *extra*-alveolar growth, or as one seated within the alveoli. The latter place is its original seat in the most acute cases of tuberculosis and phthisis, the principal anatomical change then being an intra-alveolar one, and in those cases of acute phthisis which have been called pneumonic phthisis, the pulmonary consolidation and minute foci of softening consist almost entirely of the intra-alveolar accumulations. These intra-alveolar changes are spoken of by Buhl as lobular foci of desquamative pneumonia, and he gives the name of desquamative pneumonic phthisis to the forms of the disease in which intra-alveolar products abound, and choke up the alveoli and bronchioles with dead and dying *débris*. These intra-alveolar developments of tubercle (or vesicular pneumonias, as Andral called them), when they are the sole or principal lesion, as in many cases of acute phthisis, are to the naked eye very like the

[a] Ranvier. Man. d'Hist Path. 1876. 3me ptie. P. 718.

typical, firm, grey granulations, but do not present to the hand that feeling of standing out from the surface the firmer variety of tubercle conveys.[a]

When the small-celled, adenoid growth, the tubercular formation, preponderates in the alveolar *walls* and in the interlobular tissue, it is not so rapidly or so uniformly fatal as when the principal anatomical changes are intra-alveolar ones, because in the former case the extra-alveolar or interstitial growth very frequently undergoes progressive development and becomes densely fibroid, whereas the large intra-alveolar elements, the desquamated epithelium, invariably degenerates and undergoes retrogressive changes. The primary essential alterations in the lungs in acute miliary tuberculosis, and which are precisely similar to those met with in phthisis, are then principally of two kinds—the one an accumulation of large epithelial-like cells within the pulmonary alveoli; the other, the development of a small-celled adenoid, or lymphoid growth in the alveolar walls or in the interlobular tissue.[b] That inflammation is mainly concerned with the causation of the intra-alveolar changes almost all are agreed, while those who are cautious about assigning an inflammatory origin to the extra-alveolar or interstitial growth content themselves with speaking of it as the result of irritation. It is to be observed in passing that the admission of an inflammatory agency as a cause of tubercular development is quite a different thing from admitting the existence of a special pneumonic phthisis. The doctrine of pneumonic phthisis does not refer to the well-known combination of tubercular processes with pneumonia, but to destruction of the lung as the result of inflammatory products not originally tubercular at all. It is the opinion of some that the predominance of the one or the other of these anatomical changes, the extra and the intra-alveolar growths, depends mainly upon the intensity of the inflammation, which is generally held to be an essential element in the development of the tubercles; the greater the intensity of the inflammatory process the more does it tend to produce proliferation of the large cells contained within the alveoli, the less its intensity the more does its influence tend to be limited to the elements in the alveolar walls and inter-lobular tissue.[c] The combination of both the extra and intra-alveolar lesions is most frequent. The miliary formations, which are commonly known as

[a] Shepherd. Goulstonian Lects. 1876. Brit. Med. Jour., 22nd April, p. 502.
[b] Green. Trans. Path. Soc. Lond. 1873. Vol. XXIV., p. 343
[c] Green. Op cit. 344.

tubercular, are the anatomical results of chronic inflammatory processes limited to minute circumscribed areas, and consist of that small-celled lymphoid or adenoid tissue which is so constantly observed in tubercle, associated with accumulations of epithelium within the pulmonary alveoli. In other words, it may be said that in tuberculosis the lung becomes disseminated with minute nodules, at first extremely translucent, of lobular catarrhal pneumonia. On making sections of these nodules it is found that they consist of two materials, entirely different from one another anatomically. On the one hand, the alveoli are choked with the desquamated cells which are always found there; on the other, the alveolar walls are thickened by the growth in them of adenoid tissue. As the disease advances, if the dissemination is not so multiple as to cut life short by asphyxia or acute irritative fever, these islets of lobular pneumonia coalesce, each mass caseates in the centre—*i.e.*, becomes opaque and soft, and the disintegration goes on until a vomica is formed.[a]

The lymphoid or adenoid nature of tubercle may perhaps throw some light upon a fact which many have tried to explain, hitherto without much success—namely, the great frequency of tubercular formations in the lungs. The word lymphoid, introduced by Virchow, expresses a histological character of tubercle in which its structure resembles, but is not identical with, an isolated lymph follicle. It has been contended that the term is not strictly applicable, because the essential part of a lymph follicle, according to His and Frey, is its reticulum, which tubercle may or may not exhibit, and generally does so only when in a very early stage; moreover, Ranvier[b] and others say that the reticulum in tubercle, when present, is altogether due to the preliminary hardening which the tubercle has been subjected to for microscopic examination. It has also been objected that a lymphatic follicle is vascular, whilst a tubercular growth is absolutely, or nearly absolutely, non-vascular. However, there is a very striking similarity between tubercles and lymphatic follicles in the size and shape of their cellular constituents, and there is reason to believe that the pulmonary organs are peculiarly rich in lymphatic tissue. The researches of Sanderson have shown that this lymphoid, adenoid, or lymphatic gland tissue is largely met with as a natural occurrence in the neighbourhood of the minute bronchioles. There are lymphatic rootlets in the

[a] Sanderson. Ed. Med. Jour., Nov., 1869.

[b] Ranvier and Cornil. Man. d'Hist. Path. 1869. P. 207.

alveolar septa which anastomose with the true perivascular lymphatic vessels which are situated in the adventitia of the ultimate branches of the pulmonary artery and vein, generally a couple of them to each blood-vessel, and which finally enter the root of the lung together with the veins. The net-work of peribronchial lymphatics, formed in the adventitia of the bronchi, are also in communication with the perivascular lymphatics, and the efferent vessels of both are identical.[a] Buhl has also shown that the alveolar walls are intimately connected with the lymphatic capillaries, and that the large cells lining these walls correspond with the lymphatic endothelium. Rindfleisch[b] had his attention aroused, in the case of miliary tubercles peculiarly abundant in and upon the interlobular septa, to the singular coincidence between their arrangement and the course of the lymphatic vessels; a step further brought him to the conclusion that the canals from whose walls the miliary nodules grew were no other than the lymphatics, and he describes tubercle of such an origin under the name of lymphangitis nodosa, and figures it under that of lymphangitis tuberculosa. Sikorski has announced the discovery of a lymphatic plexus in the air-vesicles which presents the closest analogy to the origin of lymphatics in other parts, and which he has traced also through the bronchioles.

There is no contradiction implied in the derivation of tubercle from lymphatic irritation to the opinion of Virchow that tubercle has its origin in connective tissue, as it has been shown by Sertoli and Schmidt that the lymphatic structures, in their embryological development, proceed from the connective tissue series. The most recent works[d] also of His, Schweiger-Seidel, Ranvier, and Rouget, represent the lymphatic system as originating in the connective tissue. Now as to the predisposition of the lungs to tuberculosis, Niemeyer[e] considers that the fact that the lungs more frequently than any other organ become the seat of tubercles, and that this tuberculosis remains very often limited to the lungs, has its cause in this, that the diseases of the lungs, much more easily than those of other organs, leave cheesy products behind them, and that in most, although by no means in all cases, the eruption of tubercles remains confined to certain not very wide limits. This view is a special outcome of the doctrine of pneumonic phthisis.

[a] Klein. Anat. of Lymph. Syst. 1875. Chap. V.
[b] Rindfleisch. Path. Hist., Syd. Soc. 1873. Vol. II., p. 46.
[c] Virchow. Cell. Path. (Chance) 1860. P. 475.
[d] Demange. Etude sur la Lymphadenie. 1874. P. 32.
[e] Niemeyer. Clin. Lects. Pulm. Consump., Syd. Soc. 1870. P. 17.

Graves[a] suggested that, although there was no satisfactory solution of the problem why tubercles should be so much more common and numerous in the lung than in any other organ, that it might throw some light upon this obscure subject to remember that the lung is the only organ through which the entire mass of the blood circulates. "Tubercles," he observes, "are a disease of nutrition, a process which depends intimately on the blood; and it may not seem strange," he continues, "that they should be most frequent and numerous in an organ which has a more intimate connexion with the sanguineous circulation than any other." Tubercle, according to Wilson Fox[b] is an overgrowth or hyperplasia of lymphatic tissue, resulting from irritation of the lymphatic elements excited by abnormal local or constitutional conditions, or in the great majority of cases by both combined. The explanation then may be expressed in a series of propositions. The lungs are peculiarly rich in lymphatic tissue, and are subject to the circulation of the whole mass of blood in the body. The parts most apt to be affected with tubercle are those in which the lymphatic tissue or, as Sanderson calls it, the adenoid structure exists naturally in the greatest abundance. The blood and the air, one or both of which may be highly charged with irritating or infecting impurities, have in the lungs the freest access to this tissue, morbidly susceptible in certain constitutions. In no other organ of the body are the irritating and the irritable bodies liable to be brought into such frequent or such close opposition as in the lungs. It is possible that the solution of the problem may be found in some such considerations; the liability of the apices to tubercular formation will be a subject for future inquiry. The greater general irritability of the lymphatic tissues in children seems to be the most plausible hypothesis in explanation of the fact that tubercle in such subjects is multiple more commonly, and to a greater degree, than in the adult. There are, it is well known, forms of acute miliary tuberculosis in which the lungs are almost unaffected, and there are even cases in which the profuse eruption of miliary tubercle is confined to one lung, but the cases in which the miliary tubercles are not found in the greatest number in the lungs form only a very small proportion of the whole number. The exceptions are usually those of rapidly fatal affections of the pia mater, a structure which is, like the lungs, singularly rich in perivascular

[a] Graves. Clin. Lects. Vol. II., p. 100.
[b] W. Fox. Trans. Path. Soc. Lond. Vol. XXIV., p. 382.

lymphatic tissue. It is not to be concluded that any and every irritation of the adenoid tissue in the lungs is necessarily competent to produce tubercle, or that every overgrowth of adenoid tissue is necessarily possessed of the vital characteristics of tubercle. Such an exaggeration of the lymphoid nature of tubercle would only lead to a fresh series of errors such as have already more than once gravely compromised progress in the pathology of phthisis. It will be my object, in the next lecture, to consider the conditions which confer upon the irritation on the one hand, and upon the lymphatic tissue on the other, the liability naturally to engender tubercle.

It cannot but be a matter of surprise to anyone acquainted with medical literature, how strangely old the apparently modern opinion of the lymphoid nature of tubercle is. Franciscus Delaboe Sylvius,[a] in 1695, held that tubercle arose from certain glands in the lung which resembled those of the neck and mesentery, and that in consequence of an hereditary and constitutional disposition consumption is produced by the swelling and enlargement of these glands, and their final conversion into suppurating tubercles. Portal,[b] in 1809, said that, after a most attentive examination, he had come to the opinion that tubercles are formed both by engorgement of the lymphatic glands which are spread through almost all parts of the lungs or along the bronchi, as well as by lymphatic swellings of the cellular tissue of the lungs, which, after a variable permanency, terminate frequently by turning into a bad suppuration. Broussais also propounded the notion that tubercles are the result of chronic inflammation of the lymphatics of the lungs. Abercrombie[c] expressed the same idea, and alludes to the tuberculous disease in the mesenteric and lymphatic glands as strictly analogous in its nature to the more complex tubercular masses met with in the lungs, and as exhibiting more simply and distinctly its states and stages. Laennec's[d] assertion, that tubercle was the development in the lungs of a particular species of *accidental production*—meaning by the term accidental production a substance foreign to the natural organisation of the part—was sufficient to put into the background, for the time, the idea of its connexion with lymphatic tissue, where it remained until Virchow described tubercle as a form of lymphoma.

Similarly, also, the present state of feeling, that inflammatory or

[a] Sylvius. Opera. Med. Traj. ad Rhenum. 1695.

[b] Antoine Portal. Obs. sur. la Nat. et le Trait. de la Phth. Pulm. 1809. Tome ii., p. 307.

[c] Abercrombie. Trans. Med. Ch. Edin. 1824.

[d] Laennec. Treat. on Dis. of Chest. (Forbes.) 1827. P. 271.

irritating agencies are largely concerned in the development of tubercle and in the further changes in the lung which accompany and result from its evolution, was foreshadowed long ago by observant and reflective physicians. It is now known that tubercle is an inflammatory growth, that the morbid processes which lead to the consolidation and subsequent disintegration of the lung come within the category of inflammation, and that the differences in the anatomical changes to which they give rise are due to differences in the intensity, in the duration, and in the mode of origin of the inflammatory process.[a] But long ago Broussais[b] traced phthisis to varieties of inflammation. He said that he had never seen tubercles in the lungs without antecedent inflammation, and, as before-mentioned, recognised the part the lymphatics of the lung play in it. Andral also regarded inflammation as a primary agent in much of the pathology of pulmonary consumption, and spoke of miliary tubercles, under the name of vesicular pneumonias, as due to an inflammation of individual vesicles of the lung. Alison[c] believed it to be a real and frequent occurrence that inflammation, acute or chronic, however produced, becomes in certain constitutions the occasion of the development of tubercles. Cruveilhier's[d] teaching was that pulmonary tuberculosis is only a peculiar form of inflammation of the air vesicles. However, the preponderating influence of the doctrine of Laennec,[e] that "tubercles are not the production of inflammation of any one of the constituent textures of the lung," supported as it was by Louis, was long paramount, and checked the development of these views to a degree which it has taken a long time and much effort to overcome.

It might then appear to some that Laennec, instead of advancing the pathology of tuberculosis, as it existed about his time, actually checked its progress. Men were thinking of tubercle as connected with the lymphatic glands, and as due to inflammatory processes, when he asserted that it was an accidental production, and denied the inflammatory origin of the tuberculous matter. The contemptuous observation has even been made, that if Laennec's name were not for ever associated with the stethoscope, it would have been forgotten in connexion with the diseases of the chest. But those who, in more recent days, judge harshly of Laennec's opinions

[a] Green. Path. and Morb. Anat. 1875. Pp. 350, 357.
[b] Broussais. Exam. des Doct. Méd. Tome I. prop. 168.
[c] Alison. Trans. Med. Ch. Soc. Edin. 1824. P. 408.
[d] Cruveilhier. Anat. Path. Vol. IV., p. 546.
[e] Laennec. Treat. on Dis. of Chest (Forbes). P. 297.

as to the intimate nature and causes of tubercle, should remember the times he lived in. Laennec was one of the founders of the great school of pathological anatomy of France. His habits of thought, from the cultivation of a science founded on accurate observation, made him, like a true genius, indisposed to attempt the solution of questions impossible to answer fully with the means at his command. He faithfully observed, and accurately described all that can be seen with the naked eye in consumptive lungs, but he stopped on the threshold of the nature and causes of pulmonary phthisis, and left to his successors the task of settling the seat and origin of tubercle. It was not till twenty-four years after his death that Reinhardt's microscopical labours were able to prove what had been before surmised, that tubercular infiltration was really largely due to inflammatory agencies. Laennec accomplished the synthesis of tubercle in making tubercular phthisis a synonym for pulmonary consumption, and uniting into one class all the previously made varieties of the affection. Before the era of Bayle and Laennec, who together created the pathological anatomy of pulmonary phthisis, the description of the disease was based upon symptoms—a method which always tends to lead away from unity towards interminable differentiation, and some of the results of this system had been that Morton recognised sixteen varieties of the disease, Sauvages twenty, and Portal fourteen. Bayle[a] was the first to break away from the scholastic traditions which described the malady according to its phenomenal characters, and he led the way in applying pathological anatomy to the classification of phthisis. Laennec, two years afterwards, rearranged Bayle's six species (Phthisie tuberculeuse, granuleuse, avec mélanose, ulcéreuse, calculeuse, cancéreuse) uniting together his tubercular and granular phthisis, and referring his remaining four varieties to other destructive conditions of the lung, having nothing in common with phthisis except that they concerned the same organ. Beautiful in its simplicity was Laennec's conception of the unity of phthisis, of one form of pulmonary consumption—viz., tubercular phthisis; and it was this recommendation which has made it take such root in the minds of men that it has withstood the almost Titanic efforts to dislodge it up to the present time, when, the necessary correction of unavoidable errors having been made, confirmation of its truth comes in from many sides. Widely different from clinical and symptomatic points of view as may be the acute, the chronic, and the mixed develop-

[a] Bayle (G. L.) Recherches sur la Phthisie Pulmonaire. Paris, 1810.

ments of tubercle, still the majority of the most recent and most competent authorities recognise these differences to be due to local and constitutional causes, rather than to a difference in the essential nature of the disease. They are forced to the conclusion that there are not such fundamental anatomical differences in tuberculosis as to justify the classification of its different forms as distinct diseases. They are compelled to regard the variations between the manifestations of what is called acute tuberculosis and of ordinary chronic phthisis as determined in many cases by the age of the patient, or by a rapid multiplicity of lesion, and not by a difference in pathological identity between the various forms of tubercle to be found in each variety of the affection when properly looked for. Among the most recent French works, those of Thaon,[a] Lépine,[b] and Grancher,[c] are consecrated to the unity of phthisis as laid down by Laennec. Ranvier[d] maintains the same opinion, as opposed to the dualistic view, according to which tubercle on the one hand and caseous pneumonia on the other constitute two processes absolutely distinct, and according to which there are two different forms of phthisis—a tubercular phthisis and a pneumonic phthisis. It has been ascertained that the histological changes in the lungs which occur in pulmonary phthisis are precisely analogous to those which are met with in acute tuberculosis. They differ mainly in this respect, that whilst in the latter disease these changes are usually limited to minute areas—hence the miliary character of the lesions—in the former they commonly involve much wider tracts of tissue. Although the variations in the physical characters of phthisical lungs, and also in the clinical history of pulmonary phthisis, have led to its subdivision into different kinds, there do not appear to be any pathological grounds for such an arrangement. The variations observed in the clinical history of phthisis, and in the physical appearances of the lungs, are mainly due to differences in the duration and intensity of the inflammatory processes which give rise to the pulmonary consolidations, and also to the parts which tubercular pneumonia, bronchial inflammation, and infection play respectively in the particular case.[e] As Wilson Fox[f] puts it, he finds in the lungs of patients dying of phthisis almost identically the same alterations as those found in the

[a] Thaon. Recherches sur l'anat. Path. de la Tuberculose. 1873.
[b] Lépine. De la Pneumonie caséeuse. 1872.
[c] Grancher. De l'Unité de la Phthisie. 1873.
[d] Ranvier. Man. d'Hist. Path. 1876. 3me ptie. P. 733.
[e] Green. Path. and Morb. Anat. Third edition. 1875-6. Pp. 350 and 363.
[f] W. Fox. Trans. Path. Soc. Lond. 1873. Vol. XXIV., p. 290.

lungs of children dying of acute tuberculosis, with such varieties of anatomical change as may be tolerably clearly traced to lapse of time. Nor is the unity of phthisis based alone on histological evidence. Moxon[a] holding the opinion that all phthisis is tuberculosis, believes that the general anatomical characters of phthisis, as seen with the unaided eye, form a sufficient basis for its separation from all other kinds of lung disease, and for its union into a single kind. The rough anatomical characters which he regards as quite distinctive of phthisis are, that the disease appears in circumscribed and isolated patches—which extend in the main from above downwards—being in greatest quantity and oldest above, that the patches are as much deep as superficial, and that they become caseous and soften into vomicæ. In no other disease but phthisis are these characters found, and he regards them as positively sufficient to separate phthisis from all other pulmonary diseases, and to gather together all phthisical cases into one natural group practically coinciding with the tubercular phthisis of Laennec and Louis.

But to return, for the last time, to the histological aspect of the question; the distinctive anatomical feature of phthisis, whether acute or chronic, whether diffused or in the circumscribed form of grey granulations, the one common feature in the whole class of phthisical lungs, in addition to pneumonic and fibroid changes, is, as described by Wilson Fox,[b] the constant growth of small cells or nuclei; in some cases these are imbedded in a fine reticulum, while in others this reticulum may be less apparent, but in all the cells or nuclei are densely massed, and of the same character; this growth is attended by the destruction of the capillary circulation, and has a tendency both itself to undergo caseous change, and also by the arrest of the circulation, to give rise to this change in the tissue in which it has occurred; in some parts this growth forms round masses, corresponding to the grey granulations in serous membranes; in others it is diffused through large tracts of the tissue of the alveolar walls and bronchioles; in the latter case it is usually mingled with pneumonic products, and in a very large proportion of what appear to the naked eye as granulations it is also mixed with pneumonic products—that is, with epithelial proliferation in the interior of the alveoli.

The principal points to which I have been desirous to allude in this discourse, but which, I fear, I may only have made more

[a] Moxon. Trans. Path. Soc. Lond. 1873. Vol. XXIV., pp 307, 311, 313.
[b] W. Fox, Trans. Path. Soc., Lond. 1873. Vol. XXIV., p. 357.

obscure from the limited time at my disposal, are: The difficulty of defining tubercle dialectically; the causes and consequences of that difficulty; the necessity of an acquaintance with the various forms and phases of the tubercular granulation in order to recognise it in the complex structures of the lungs; the true nature of tubercular infiltration, that it is tubercular pneumonia; the seat and nature of the tubercular growth, that it is highly probable it is due to irritation of the lymphatic tissue of the lung; and, finally, the unity of phthisis as conceived by Laennec. In the next lecture I hope to deal, among other matters, with the subjects of the transmissibility of tuberculosis, and of its relations with scrofula. Important as may be the establishment of the fundamental identity of all forms of phthisis, the questions concerning its etiology are much more so. As Liebermeister has well observed, the principle of pathological anatomy is not the final one which science has to accept, and even in our day she is on the point of exchanging that principle for another, without yielding up the knowledge which it has furnished, and promises still to furnish. As in all experimental science, so also in pathology, the conviction is growing stronger that in the investigation of diseases, at all events, the idea of causality represents the last point to be reached, and accordingly the most scientific method of investigation must refer to causes, must be etiological. During the reign of pathological anatomy, while pathology and diagnosis were making rapid progress, and while proper recognition was made of all they accomplished, the reproach was often expressed, and with reason too, that the practical goal of all medical science, therapeutics, gained no direct advantage from the new discoveries, but, on the contrary, that it was rather pressed into the background. But the etiological principle, carried out upon the ground prepared by the anatomical discoveries, promises to do much more for therapy. We shall always be learning more and more how to grasp the trouble at the root. The *indicatio causalis* will again assume a higher position in therapeutics, and we shall find more efficient remedies with which to answer it. And lastly, in many diseases, and probably in none more than in tuberculosis, we shall be able to hope for a successful prophylaxis, which may make therapeutics, in the narrower sense of the word, superfluous.[a]

[a] Cycl. Pract. Med. Ziemssen. 1875. Vol. I., p. 20.

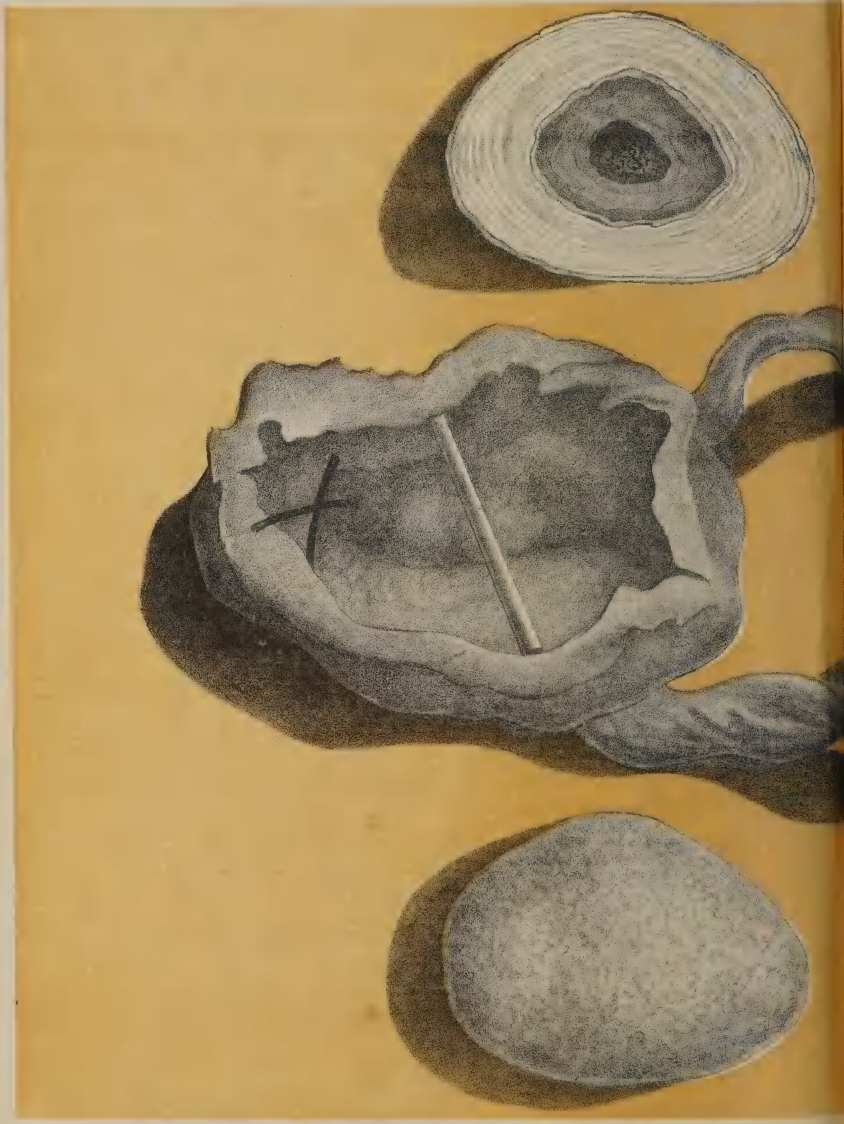
ART. II.—*Notes of a Case of Disease of the Kidneys, induced by the Presence of a Stone in the Bladder.* By CHARLES B. BALL, M.D., Ch.M., Dub. Univ.; Surgeon to the Blaenavon Iron Works, Monmouthshire.

THE following case appears to be worthy of record, as there are several points of clinical and pathological interest connected with it, especially so as in these days of improved surgery it so seldom happens that a case of vesical calculus in an otherwise healthy individual is allowed to run on to a fatal termination without any operation having been attempted:—

The patient, a young man of twenty-two years, came under my notice in March, 1874, for the first time. He complained of pain after micturition, but had no other symptoms of stone. Sounding showed the presence of a small calculus about the size of a horse-bean. There were no symptoms of much bladder irritation; the urine was free from albumen and crystalline deposits, and he had no constitutional symptoms of any consequence. The urethra was capacious, and the case appeared in every way eminently fitted for lithotrity, but I was unable by any means to persuade the patient or his friends to consent to operation, although the great danger of delay was pointed out.

I subsequently lost sight of the man for upwards of two years, during which time he underwent several quack treatments for stone with the usual result. In the end of last July I was again asked to attend him, when I found his symptoms very much aggravated; he was greatly emaciated; he suffered intense pain during micturition—so much so, that he invariably passed water lying down. The urine was alkaline, slightly albuminous, it deposited a quantity of ropy mucus, and the microscope revealed in the sediment an abundant supply of crystals of triple phosphate, together with pus corpuscles. Sounding showed that the calculus had increased greatly in dimensions, and considerable pain was caused whenever the instrument struck the stone. He was now anxious to undergo any operation which was calculated to relieve him of his intense suffering.

The question whether operation was justifiable in such a wretched case at once arose, and I came to the conclusion that there were no symptoms which ought to negative the performance of lithotomy. The small amount of albumen in the urine might have come from the pus secreted by the inflamed bladder, and he had no pain or tenderness in the loins to indicate renal disease. Lithotrity was considered inadmissible on account of the size of the stone, and the cystitis which existed. The operation was readily acceded to, but owing to family matters it had to be postponed for a week.



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Two days before the appointed time he had a violent rigor with intense pain in the left side. Suppression of urine followed, uræmic convulsions supervened, and he died comatose six days after the initial rigor.

Of course, all thought of operative interference was abandoned when these severe symptoms developed themselves.

On making a *post mortem* examination the urinary organs were found in the following condition:—On the right side the kidney was simply a contracted cyst, in the wall of which but faint traces of glandular structure remained. There was a small quantity of fluid in the cavity; the ureter was very much dilated and full of fluid, which could with difficulty be made pass into the bladder by pressure. On the left side the kidney was greatly increased in size, and the surface was nodular. On making a section, it was found to be full of abscesses about the size of filbert nuts. The pelvis contained fœtid fluid, and the ureter was dilated to the usual size of the small intestine; it was full of the same fœtid fluid, which could with difficulty be made to enter the bladder by pressure.

The bladder was much contracted in capacity, and its coats were greatly hypertrophied, measuring half an inch in thickness. It was with great difficulty that a fine probe could be passed from the ureter into the bladder, and a ridge of thickened muscular tissue surrounded the openings of both ureters; these appearances are well shown in the lithograph; the ureters were, however, larger when the specimen was received.

The stone which the bladder contained weighed 2½oz., and, on making a section of it by means of a lapidary's wheel, it was found to be of compound structure; analysis showed the central portion to be composed of oxalate of lime, consisting of two layers, the inner darker and the outer lighter; this was surrounded by pure phosphate of lime of intense hardness—so much so, that its surface could only be scraped by a penknife, for analysis, with considerable difficulty, and it was in appearance like porcelain; on the outside of all was a thin layer of ordinary mixed phosphates, which was soft and easily fusible before the blow-pipe. The appearance of the stone in section is shown in the engraving.

Remarks.—The clinical history above detailed gives additional proof of the great difficulty there is in arriving at a correct conclusion as to the state of the kidneys in cases of vesical culculus. That the right kidney had suffered for a considerable time from suppurative nephritis is clearly shown by the *post mortem* appearances, but I think that, for some time previous to death, the disease in that gland had become passive, the secreting structure having been destroyed. The left gland, on the contrary, showed

signs of recent disease only—so much so, that it appears possible that if lithotomy had been performed a few weeks before, it might have been successful, as the intense symptoms which followed the rigor six days previous to his death would appear to indicate that the abscesses dated from that time, so that if the suppuration in that gland had been obviated by removal of the cause, the patient might have lived for a long time with only one kidney capable of secreting urine.

The case also appears to throw important light on the cause of diseased kidney as a result of vesical calculus. In the books on the subject which I had an opportunity of seeing, Sir B. Brodie's theory, as to its mode of production, is given—namely, that the renal mischief is due to the extension of inflammation from the interior of the bladder up to the ureter to the kidney. This explanation, however, does not appear to be altogether satisfactory. For in the first place we do not find any signs of inflammation in these tubes *post mortem*—in fact, they are generally dilated as in the above case, which is precisely the opposite condition to what we would expect to find if the ureters had suffered from any inflammation similar to that in the bladder.

Secondly, we would expect that if inflammation spread up the ureters, it ought also to travel along the urethra, and from this tube along the vasadeferentia, but we do not find urethritis or suppurating testicle as a frequent result of neglected stone.

The cause of the disease in the case under our consideration was, undoubtedly, an obstruction to the flow of urine into the bladder from the ureters, the openings of which were tightly strictured. The small pieces of whalebone, shown in the lithograph, indicate the openings alluded to; these were passed with considerable difficulty from the ureters into the bladder.

The obvious result of such obstruction would be the accumulation and decomposition of urine in the ureters and pelves, which would soon, by continued irritation, set up suppuration in the glandular structure. The case is exactly similar to what happens in cases of urethral stricture and prostatic disease, except that in the latter cases the bladder is behind and not in front of the obstruction. That the openings of the ureters should become strictured, is, I think, easily accounted for by the following considerations:—

Firstly, it is the narrowest part of the tube, naturally, and it passes obliquely through the muscular structure of the bladder.

Secondly, as in cases of calculus, the coats of the bladder are thickened, while its cavity is diminished; the ureter as it runs through these coats is subjected to further constriction.

Thirdly, the spasmodic contraction of the bladder on a stone in its interior, would tend to occlude the openings.

Judging by the analogy of the urethra, we may, I think, conclude that spasmodic contraction of the ureter is more frequent than is generally supposed; and that a spasmodic stricture, which would cause considerable retention during life, might leave but slight traces *post mortem*.

We are, I think, justified in the conclusion that the chief factor in the production of renal disease in cases of contracted bladder, whether from calculus or other cause, is the strictured openings of the ureters.

The structure of the stone appears to be very unusual, the intense hardness of the middle layer, which is composed of phosphate of lime, being remarkable; it is susceptible of a high degree of polish; and had it been subjected to lithotrity it would have, no doubt, taxed to the utmost the powers of the instrument.

ART. III.—*A Few Remarks on Enucleation of the Eyeball for Traumatic Inflammation.* By H. MACNAUGHTON JONES, M.D., M.Ch., F.R.C.S.I. and Edin.; Surgeon, Cork Ophthalmic and Aural Hospital, &c.

SOME time since I published in this Journal, with some accompanying observations, the particulars of a case in which I enucleated the eyeball on the suspicion of a foreign body remaining in the eye, and where a piece of percussion cap was found, after removal of the eyeball, lodged in the vitreous humour. I then dwelt (Feb., 1876) on the responsibility which rests on the surgeon who, in certain traumatic cases, advises the injured ball to be retained, and pursues an expectant plan of treatment. Having then epitomised the views of modern Continental and British ophthalmologists on this subject, it is not necessary again here to refer to these. Since that paper was written, during the year 1876, it has fallen to my lot, in hospital and in private practice, to see an unusually large number of serious accidents attended with severe injury to the eye. In forty-five cases of serious wounds treated in the hospital the operation of enucleation had to be resorted to fifteen times; besides, I saw three patients in private practice requiring removal of

the eyeball. Of the hospital cases three had the eye removed for sympathetic inflammation occurring previous to admission to hospital; in the remaining cases the wounds were of such a hopeless nature that it became a matter of expediency to remove the eye at once. Two of the three cases in which the eye was removed for sympathetic changes in the sound eye recovered with a permanent impairment of vision in the sympathetically affected eye. Of the three cases operated on in private, one, a little boy of about four years, was brought a long distance for removal of a stump, with sympathetic changes occurring in the other eye from irritation caused by the collapsed ball. This child narrowly escaped loss of vision, as for months, with constant care and watching, the sound eye remained very sensitive to light, injected, and watery. It was only recently that I learned from the child's father that the eye had nearly altogether recovered, and had lost the extreme sensibility which was present for some time after the operation. The second case was that of a gentleman who came some weeks after an injury, caused by the accidental stab of a knife, with sympathetic mischief setting in in the other eye, marked by intolerance of light, injection of the vessels, slight diminution of tension, lachrymation, and some pain. The eye improved immediately on removal of the injured ball; but even yet there is a diminution of vision and an increased sensibility. The third case was that of a gentleman whose eye was removed for an explosion of the cartridge of a breechloader; he was pushing the cartridge in with a stone, when it suddenly exploded in his face; the grains of powder were imbedded all over the face, and several penetrated one of his eyes.

The notes of the case I now append (the first I operated on in 1877) are instructive, as it was one of those cases in which hesitation might have been fatal to the uninjured eye, yet in which no foreign body was found on enucleation, though the fear that such might be present was one of the grounds urged on the parents to decide to have the organ removed:—

Mast. C., aged fourteen, consulted me in February last. Twenty-five days previously a bottle containing some gunpowder exploded, and a portion of the glass had either struck or entered the eye. The eye was blind from the time of the injury, and he had suffered great pain for a week subsequent to its occurrence. He had been seen by other medical men, and in consequence of the great sensitiveness to light and the non-improvement of the eye was sent to me. When I saw him there was that extreme intolerance of light so characteristic of intra-ocular mischief.

He could not bear even a glimmer of light without pain. On examination I found the tunics of the injured eyeball generally injected; the cornea and iris healthy; and a small healed wound at the sclero-corneal junction, at the upper and outer margin of the cornea, about four lines in extent to the cicatrix, of which the iris was adherent. The lens was swollen and opaque. Towards the displacement of the pupil there appeared to be a different reflection with transmitted light, and I fancied I could distinctly define a region to the upper and outer margin of the crystalline lens, from which a dull reflection came. The eyeball was sensitive to the touch, but not extremely so. The fundus of the sound eye, on examination with the ophthalmoscope, was found to be generally hyperæmic; the optic disc had an abnormally red look, all the vessels being congested. I proposed and carried out enucleation the day on which I saw the patient, for the following reasons:—1st. The uncertainty of a foreign body being in the injured ball, and the possibility or even the probability of such being the fact; 2nd. The probability that pus had formed and was forming in the posterior chamber and in the neighbourhood of the ciliary body; 3rd. The imminent risk to the sound eye from delay, as evinced by (*a*) the intolerance of light, and (*b*) the ophthalmoscopic appearances in it. The eye was taken out under ether. The patient had next day complete relief from the great intolerance of light. He returned home one week after the operation, improved in his general health, which was affected by the suffering he underwent, and with the sound eye perfectly recovered. I examined the globe with Dr. R. Atkins. We searched carefully for a foreign body, and could not find any. The iris was healthy; the lens was opaque and dense; the vitreous was all disorganised, being in parts purulent, and in parts on the verge of suppuration; the retina was separated extensively. We examined portions of the vitreous under the microscope, and confirmed these naked-eye appearances, seeing distinctly the pus corpuscles and granule cells —"the vitreous humour being," as Dr. Atkins subsequently wrote me on a more careful examination, "clouded, containing numerous flocculi, in parts of a greenish yellow colour, consisting of multitudes of minute fatty globules and large granule cells. The retina was thickened and tough. Under the microscope many of its nerve-cells were studded with oil and fatty globules."

It is not necessary to add that had an expectant plan been adopted in such a case as this, or any doubt been exhibited, the result in all probability would have been ophthalmitis in the injured ball, and impaired or lost vision in the now healthy eye.

ART. IV.—*Carbonaceous Infarction of Colliers' Lungs.* A Thesis read for the Degree of Doctor of Medicine, Univ. Dub. By ARTHUR S. UNDERHILL.

IT was suggested to me that, in choosing a subject for my thesis, I should write on some disease peculiar to the district in which I live, or to other coal-producing districts similarly situated. I, therefore, have chosen "Lung-diseases amongst Colliers," and my object will be to add my quotum of knowledge to what has been already observed and commented on by previous writers. All my life, save when pursuing my medical studies, has been spent in the South Staffordshire coal valley, and my observations have been strengthened, and valuable hints given me by my father, who has practised for thirty years in the same district, he likewise being preceded by his father. "Colliers' phthisis," or, as it may more correctly be termed, "carbonaceous infarction of colliers' lungs," or "anthracosis," is almost peculiarly a miner's disease; but it has been exceptionally found among chimney sweeps, charcoal refiners, and those who work in a close smoky atmosphere. It was first prominently brought under the notice of the profession in a paper written by Dr. Makellar in *The Edinburgh Monthly Journal of Medical Science* (1846) with the title of "black phthisis," or "ulceration" induced by carbonaceous deposit in the lungs of miners." Drs. Pearson (*Phil. Trans.*, 1813), Gregory (*Edin. Med. and Sur. Journal*, 1831), Graham, 1834; Mr. Thompson (*Trans. Med. Chir. Soc. Lond.*, Vols. XXI., XXII.), and a few others had before this reported cases with comments, but to Dr. Makellar is due the merit of having first thoroughly investigated the disease, and of publishing the results of his investigations. He relates ten cases, with the *post mortem* appearances in nine of them. Since his time, Drs. Greenhow and Bennett, MM. Guillott, Virchow, and others, have related cases and theorised as to the precise nature of the deposit, and how and by what channels the sooty particles found have become stored up in the lungs, and caused their disintegration.

As a result of their labours we find that the disease has been noticed amongst miners of all ages, but far more frequently in those who have worked for some time in the mines. Males and females were equally affected. Since the Miners Regulation Act has been passed, women and children under sixteen years of age are prohibited from working underground. This law also provides

for the more efficient ventilation of the mines, and other well-considered sanitary measures, which in this district are gradually stamping out the more severe cases of lung-disease. Formerly it was no unusual occurrence for miners to be compelled to cease from work for days on account of the "damp"—*i.e.*, the carbonic acid gas; often, too, for hours the atmosphere would be so loaded with thick smoke from the gunpowder used for blasting purposes, that the miners could not see a yard in front of them, and the carbonised atmosphere would not give sufficient oxygen to keep light in their candles. Pits in which there was but little fire-damp—*i.e.*, carburetted hydrogen, were particularly unhealthy, as in them there was an immunity from the danger of explosion, and consequently the air was seldom or never renewed, and miners were, therefore, much more liable in them to these diseases which they appropriately term "the rot."

Amongst the immediate causes of lung-disease we find coal dust, carbon given off from the gunpowder, and carbonic acid gas from the candles, from the pre-respired air, and from the decay of vegetable and other substances in the coal. This latter cause is found to a much greater extent in some pits than in others. Makellar observes, and his observations agree with ours, that the workers in pits where there is much stone to contend with are more liable, in part due to the "poisonous" character of some mine stone, and also to the greater quantity of gunpowder being used in making headway through it. In most of Makellar's cases the patients had worked in pits with a very thin seam of coal, where they had often to lie in a constrained position, and consequently to interfere with the free action of their lungs.

Three distinct forms of disease are found:—

1st. Bronchitis, with mucous, muco-purulent or purulent expectoration, in some cases mixed or streaked with carbon; this is by far the most common form.

2nd. Chronic pneumonia, with a black fibrinous exudation into the air-vesicles and bronchioles; this may terminate in the obliteration of air-vesicles and bronchioles from organisation of the exudation, and consequently a dilatation of the bronchial tubes (or bronchiectasis) may be established (the dilatation being compensatory to the loss of air-space in the air-vesicles), or the exudation may undergo a cheesy metamorphosis (Niemeyer), and following the rule of all neoplastic products may disintegrate, and in process of disintegration may necrose the lung tissue and form a cavity.

3rd. A chronic interstitial pneumonia, known also as fibroid phthisis or cirrhosis of the lung, in which there is inflammatory hyperplasia of the connective tissue of the lung, resulting primarily in augmentation of the substance of the lung, with a subsequent puckering, causing obliteration of bronchioles and air-vesicles and dilatation of bronchi (the process of puckering consequent on the contraction of the organisable exudation mechanically pulling open the bronchi), or, as in the former case, a cheesy metamorphosis of the exudation may ensue and disintegrate, forming cavities.

Dr. A. Clark has particularly called attention to this sequel of the irritating particles of coal dust, and his observations are supported by the experience of subsequent investigators.

Undoubtedly of all these the most common is bronchitis, and experience tells us that there are few, if any, colliers who have passed the prime of life without being affected by bronchitis with emphysema and a chronic winter cough. The symptoms and physical signs differ but little from those of ordinary bronchitis; the sputum is not of the lampblack character of the advanced pneumonic form, although it is usually mixed with particles of carbon, which have become entangled in the mucus lining the bronchial tubes, and is so spat up. The process which takes place is beautifully seen by gagging open a frog's mouth and blowing charcoal dust on to the upper wall of the pharynx, which is lined with ciliated epithelium. The dust will be seen to have become mixed with the mucus, and to be gradually extruded by the cilia into the mouth (Rindfleisch). This happens in the bronchial tubes wherever they are lined with ciliated epithelium.

But in more severe cases the carbon is not so extruded, and inflammatory disease is established, which more rarely affects the lung-tissue, giving rise to chronic pneumonia and chronic interstitial pneumonia; and as an example I will quote a case which was under my father's care in 1868. The patient, a collier, was sixty-seven years of age, and had worked in the mines from boyhood till within the last five years of his life, when he became short of breath, and consequently unable to work. He had occasional spasmodic asthmatical attacks, with great pains in his side, and was rapidly emaciating; otherwise his symptoms differed but little from those of chronic bronchitis with emaciation. A few months before death there were physical signs of consolidation of the apices of both lungs; the dyspnœa and emaciation were progressive. Ten days before death he suddenly expectorated a great quantity of sputum resembling black paint, and continued doing so to the amount of four or five

ounces daily. On *post mortem* examination both lungs were found to be generally of an ink-black colour. On a section being made, a quantity of thick black fluid exuded. The upper part of the right lung was firmly adherent to the parietes of the thorax posteriorly; the pleura was everywhere considerably thickened; the apex of the lung was solidified into a firm mass, cutting with a smooth section, and much resembling black India-rubber; immediately below this was a large, irregular, rugged cavity; the bronchial tubes seemed dilated and blackened; the bronchial glands were enlarged, and of a black colour.

The left lung contained a large solid black mass, occupying the greater part of its centre, very similar to that found in the apex of the right lung, and surrounding this was a quantity of lung-tissue in a state of emphysema; the pleura was greatly thickened.

The *post mortem* appearances, as above, correspond with what is usually found in carbonaceous infarction of colliers' lungs; the consolidation (or in most cases, India-rubber like induration) is most marked at the apices; and scattered through the substance of both lungs are usually found encysted masses of carbon following no definite course or shape, and composed entirely of carbon (Greenhow); the smaller bronchial tubes are found choked with carbon; and in the smaller number of cases there is pneumonic consolidation, the lung tissue being of the consistence of liver and sinking in water; the bronchial glands are of a black colour, greatly hypertrophied from proliferation of their connective tissue, which gradually obliterates the structure of the gland, leaving nothing but a mass of fibrillar connective tissue, whose concentric arrangement serves as a memorial of the original alveoli (Rindfleisch).

Dr. Greenhow, microscopically and chemically, examined the sputum from the above narrated case. The epithelial cells were seen to be loaded with carbonaceous pigment; some were perfectly opaque, others were of various shades. The black pigment was unaffected by the strongest chemical agents—nitromuriatic acid, chlorine, and even the blow-pipe being unable to decompose it; it is, therefore, pure carbon, and so differs from melanotic and other pigments, these agents immediately destroying their black colour. The "pigmentum nigrum" of the ox, and the "sepia" of the cuttle-fish, are rendered colourless by rubbing in a mortar with chlorine water (Makellar), these deposits being autochthonous. The melanotic deposit, in melanosis of the lungs, chemically is composed almost entirely of albumen, while the deposit in anthracosis is pure

carbon, or carbon and hydrogen combined. It is only within the last fifteen years that German physicians—notably, Virchow and Hasse—have allowed the possibility of particles of carbon penetrating the alveoli and becoming imbedded in the substance of the lung, or of being carried by the lymph stream, and so affecting the lymphatic glands and the lung-tissue, although the fact had been known years previously by English physicians. Rindfleisch has discovered, in the juice squeezed out from the connective tissue of a collier's lung, a dotted cell of coniferous wood entirely carbonised, in which he could count seven pores. I have also removed from a bronchial gland a solid piece of carbon, easily visible to the naked eye.

The Germans attributed the black colour to altered hæmatin, but the chemical characters, as before stated, refute this theory, and Virchow, in 1847, described "a brown or pigment induration of the lung" as referable to the long-continued passive congestion incident to obstruction at the mitral orifice of the heart. The microscope shows, in this disease, that the parenchyma of the lung is normal, and that there is extravasation of blood in the different stages of transformation into pigment; this is clearly a pigment of autochthonous origin.

Amongst the symptoms of colliers' phthisis we note a remarkably slow pulse, in many cases marked lividity of the countenance, and the expectoration of a very large quantity of thick lampblack sputum. The slowness of the pulse is probably due to the hypercarbonated state of the blood, the heart losing the stimulating effect of the oxygen; in part also due to the loaded state of the heart, from the impeded lung circulation. The lividity is due to the same cause.

With regard to the carbonaceous state of the blood, Makellar and Brockman believe that when the carbon is once inhaled there is an affinity for it in the blood, and, from its being deficient in oxygen, a progressive increase goes on.

No satisfactory explanation has been given for the large quantity of lampblack sputum expectorated. I make a distinction between the various forms of sputum. In some pits, particularly in hot slack pits, colliers when working are covered with coal-dust, and for some time afterwards expectorate a large quantity of thick tenacious black phlegm, which, when spat on to the fire, will burn. This is only a temporary occurrence, and after a few hours subsides. Then we have the sputum of carbonaceous bronchitis before mentioned,

and lastly the lampblack sputum of colliers' phthisis. This carbonaceous deposit (Bennett) may remain for years in the lungs without evincing any symptoms (it is usually found to a certain extent in old people) till an inflammatory attack in the lungs reveals its presence. Makellar considers in such cases that the lungs became a "lampblack manufactory," the carbon being resecreted from the glands. He is of opinion that the quantity expectorated in such cases is much greater than could possibly have been stored up in the lungs. Be that as it may, I have noticed that in nearly all the recorded cases this peculiar sputum has appeared only when there have been symptoms of lung disintegration; the physical signs have not always shown it, but in many of the cases I have noted that there have been a number of very small cavities, the physical signs of which, in the centre of a lung covered with a thick pleuritic exudation, might easily have been overlooked. Again, in one recorded case the lungs have shown *post mortem* appearances of advanced colliers' phthisis without cavity, and not in life being accompanied with black sputum. Taking into consideration that a very small quantity of the black deposit will deeply colour any tissue (Bennett, Greenhow), I am inclined to think that there is not sufficient evidence to support Makellar's views, and that the sputum becomes black consequent on the discoloration due to the black disintegrated tissue, and the masses of carbon shown before to be distributed in the lung tissue.

Microscopically it can be shown that the fine particles of carbon, when they have entered the actual parenchyma of the lung, follow the general current of the extra-vascular nutrient fluid, and ultimately reach the lymphatic vessels. I have a beautiful section taken from near the pleura; the carbon is seen in the extra-vascular lymph sheaths, lying in large quantities, and many of the capillaries are entirely occluded.

Makellar has noticed an antagonism between tubercular and black phthisis, and his observations are endorsed by Bennett, neither of whom has been able to detect any tubercle in his *post mortem* examinations, although in some cases there was a family history of tubercle. Mons. Guillott suggests that the carbon mechanically hinders the deposit of tubercle by compressing the capillaries, and so prevents further exudation; this, of course, will not prevent the caseous metamorphosis of the inflammatory products in the pneumonic form, and a possible secondary tuberculisation, which may account for the adverse opinion of some French physi-

cians. The cavities found in many cases are too large to be satisfactorily explained as of bronchiectatic origin.

The treatment to be adopted in all cases resolves itself unfortunately into that of merely alleviating symptoms. The patient should at once be removed from the pits and kept in a warm, pure air. I have under my care at the present time a well-marked case. He is forty-eight years of age, has worked in the mines from eight years of age till within the last nine months. He says he has "worked in a deal o' damp" (*i.e.* in carbonic acid gas). For seven years he has been an invalid in the winter; he suffers no actual pain, but is much emaciated, and is very short of breath. His expectoration is always tinged with carbon, although till lately it has been principally mucus. He is excessively weak; his pulse is very slow with a feeble heart's impulse. On percussion there is a much duller note than normal over both sides of the chest, and on auscultation I find the respiratory murmur everywhere muffled with an occasional mucous click. Stimulating expectorants and constantly breathing a warm pure air are the only remedies which at all relieve him. Healthy homes and well-ventilated mines, with fewer hours passed working underground, are the sole means of putting a stop to this easily-preventable disease; and coal masters now in many cases exceed the ventilating requirements of the Act, recognising the fact that bodily exertion cannot be maintained without plenty of oxygen, and that the cost of the primary outlay is soon more than repaid by the increased production.

As humanitarians, sanitarians, and physicians, it behoves us with timely advice and warning to diminish the risk to health of raising the coal, whilst we leave to the mining engineer the task of avoiding accidents to the body, which happily, with the advancement of engineering skill, have, within the last few years, been reduced almost to a minimum.

ERRATA.

In Dr. MacMunn's paper on "Medical Spectroscopy," Vol. LXIII., p. 518, note, for "medicine," read "mechanics."

P. 521, for "distance between band b and G," read "distance between B and G;" and, in the Table, for "·30," read "·03."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Treatise on the Science and Practice of Midwifery. By W. S. Playfair, M.D.; F.R.C.P. London: Smith, Elder, and Co. 1876. Two vols. Pp. 780.

There is, perhaps, no branch of the profession that has profited more by the great advance made during the present century in medical knowledge than the science and practice of midwifery. In spite, therefore, of the many works that have lately been written on the subject, we hailed with pleasure the appearance of the present volumes, which profess to be "A Treatise on the Science and Practice of Midwifery," which "embodies all recent advances;" but we regret to say that after a careful perusal of them we are forced to the conclusion that the author is not equal to the task he has undertaken. We are so fully aware of the responsibility we are under in making this statement, that we think no apology necessary for laying before the reader some of the reasons on which it is founded.

Any book professing to be "a treatise," which "embodies all recent advances," should, we think, be exhaustive, reliable, and clearly and logically expressed. We think, moreover, that the author, more especially when "he is aware that on certain important points he has recommended practice which not long ago would have been considered heterodox in the extreme, and which, even now, will not meet with general approval," should have been careful to give copious and accurate references, in order that on such confessedly disputed points the reader might at once be able to refer to the original, and judge for himself.

If we now proceed to examine how far the present work comes up to or falls short of such a standard, the first question that presents itself is—Is the book exhaustive, or, in the author's own words, does it "embody all recent advances?" Now, looking at the immense mass of contemporary German literature on the subject, one would be inclined, *à priori*, to think that in order to

embody all recent advances the author should have at least some slight knowledge of the German language and literature. Yet there is abundant evidence in the volumes before us that the author's knowledge of German is a minimum, and his acquaintance with German literature consequently almost nil. We are, therefore, not surprised to find that he has made no mention of Fehling's attempts to apply Lister's antiseptic method to parturition, or of the local antiseptic treatment so extensively employed at Leipsic; nor does he so much as notice the employment of salicylic acid. We also miss such treatment as the subcutaneous injection of ether in cases of *post partum* hæmorrhage, though Professor Von Hecker, who first introduced it, thinks it will, in most cases, render the operation of transfusion unnecessary; or the subcutaneous injection of ether for infantile asphyxia, or in cases of pulmonary embolism; nor does he mention the subcutaneous injection of alcohol or brandy in cases of *post partum* hæmorrhage. Other points that are left unmentioned are—the puncture of the intestines for meteorismus, and the attempts that have been made to introduce nourishment into the intestines through the needle; the proposal to treat peritonitis after labour by washing out the peritoneum with warm water; the subcutaneous injection of ergot, or the injection of hot water into the uterus, as means for checking *post partum* hæmorrhage; and the application of Esmarch's bandage to the four extremities in bad cases of this complication. Though both the postural method (knee-elbow position) for replacing the prolapsed cord is given, and also the method of reposition by means of the fingers, not a word is said about combining these methods. The treatment of labour complicated with carcinoma of the cervix is dismissed in less than half a page, though five pages are devoted to the birth of double monsters. He makes no mention of the positions of the head known in Germany as the "vorder-" and "hinter-scheitellage," nor of the influence of the position on the side in aiding or preventing the rotation of the presenting part forwards, nor of the attempts that have been made to measure the child while still *in utero*, or to find some relation between the size of the anterior fontanelle and the circumference of the child's head, nor of the discovery by Winckel that albumen often appears in the urine during the second stage of labour. In like manner, when recommending Credé's treatment for the third stage of labour he says nothing of the importance of supporting the placenta the moment it appears at the vulva, for fear that its weight

being suddenly put on the membranes might cause them to tear, and so part be left behind *in utero*, though Credé lays great stress on it. In giving the treatment of breech cases he makes no mention at all of Smellie's plan, known in Germany as the "Smellie-Veit'schen-handgriff," or of that known as the "Prager-handgriff." When speaking of face-presentation he says nothing of the successful efforts that have been made to change such cases into vertex presentations by external manipulation alone. There is no mention made of the subcutaneous injection of morphia in cases of spasm of the uterus, known by some as "tetanus uteri." Nothing is said of the effect of the warm douche, or passing a catheter between the membranes and the uterus, or plugging the vagina with an India-rubber bag, as means of increasing feeble uterine action. We find no mention of rupture of one of the crura of the clitoris as a cause of *post partum* hæmorrhage, though several cases that proved fatal from this cause are given in German literature. Most of these things are, we think, at least worthy of notice, and should be found in a book which professes "to embody all recent advances." We cannot but look upon it also as a great omission that the name of Michaelis is not even mentioned in the chapter on Deformities of the Pelvis, though the author might almost as well have written the chapter on the Mechanism of Labour without referring to Naegele. Now, though any one of these points singly may not be very important, we think that a book that omits them all can hardly be called exhaustive; and their omission is further proof—if such were wanting—that the author is entirely unacquainted with the German literature on the subject.

The second point to consider is, whether the book is reliable or not. Now this, we think, is the most important question of all, and we propose to consider it at some length. One would think that an author who was wholly ignorant of German literature would take care that when he did quote a German author he, at all events, quoted him rightly. The following misquotation is quite sufficient by itself to condemn the book, and entirely to shake our trust in the author. When speaking (Vol. II., p. 76) of the induction of premature labour in cases of pelvic deformity, he says that the period of pregnancy, when it should be induced, varies with the amount of the deformity, and gives a table which, he declares, was drawn up by Scanzoni, and which "may serve for a guide in settling this question." The verification of this quotation would not, of course, be difficult if the author had given us the least hint as to

where we should find the original. But here, as almost invariably throughout the book, he contents himself with giving the name of the German authority, but omits to say where the statement is to be found. Having great doubts, however, that such a table could have emanated from so practical an obstetrician as Scanzoni, we went to the trouble of hunting up the original. The reader will hardly believe that the table is quoted by Scanzoni as being drawn up by Kiwish, and not by himself, and he (Scanzoni) expresses himself about it in the following terms (Vol. III, p. 41 of the last edition of Scanzoni's Midwifery):—"We acknowledge freely that such a table looks very well on paper, but it assuredly does not possess the smallest amount of practical usefulness." Further, when speaking of the method of expressing the fœtus by pressure applied externally to the abdomen, he calls it "Credé's" method, whereas it is known all over Germany as "Kristeller's" method. To Dr. Goodell he gives the credit of having originated the idea of supporting the perinæum by introducing two fingers of the left hand into the rectum and placing the thumb on the advancing head, though this method has been in use in Germany for more than twenty years, where it is known as von Ritgen's method, and was originally proposed by Smellie to hasten extraction when the head was long delayed at the outlet. When speaking of measuring the antero-posterior diameter of the pelvis, he says (Vol. II., p. 68) that in a healthy pelvis it is impossible to reach the sacro-vertebral angle with the finger—an error which Michaelis wrote a whole chapter to refute, and into which no one acquainted with modern obstetrics on the Continent could have fallen. Our idea of the author's accuracy is not increased by finding that in the chapter on the Mechanism of Labour, Naegele's name is spelt wrongly eleven times, and only once rightly, and that he confounds (p. 308) the author Höning with Hennig, the latter name being printed Henig. He misquotes Tyler Smith (Vol. I., p. 377) when speaking of the use of forceps in occipito-posterior presentations. He misquotes Drs. Hardy and M'Clintock when giving the treatment (Vol. I., p. 395) of prolapsed funis, who, according to him, advise us to place the woman on the "same" side as that on which the cord is prolapsed, whereas in the original passage the word "opposite" is printed in italics. In the same chapter (p. 397), when speaking of turning in certain cases of prolapsed funis, he says :—"This treatment is strongly recommended by Engelmann, who found that twenty per cent. of the children delivered in this way

were saved." On turning to Engelmann's paper we find that the twenty per cent. should have been seventy per cent., a difference of just fifty per cent. In the chapter on Puerperal Insanity the statistics of Dr. Batty Tuke are wrongly quoted. These facts are quite sufficient to render it impossible for us to receive any statement on the author's mere *ipse dixit*, nor can we any more recommend him as a guide in matters of opinion or observation. Thus, we think, he is unfortunate in the passage he has chosen from Dr. Churchill's Midwifery to illustrate how the third stage of labour should *not* be conducted. For in this passage Dr. Churchill, though recommending gentle traction on the cord, says it should only be used while the uterus is contracting, and should be supplemented by pressure over the uterus. Once the placenta is in the vagina it is entirely uninfluenced by uterine contractions, and we confess that we can see no objection to removing it from this position by gentle traction on the cord. Of one thing we are certain—viz., that the combined method of traction and pressure will often save the patient from a great deal of pain. For the force required to depress the uterus sufficiently to make it expel the placenta from the vagina is sometimes very considerable, and causes proportionate pain to the patient, and is sometimes doubtlessly the starting point of subsequent parametritis or perimetritis. It is true that when giving practical instruction to beginners it may be judicious to forbid all traction on the cord, but only because, if it were allowed, one could never be certain that any pressure was being applied to the fundus. We are also glad to see that Spiegelberg, the latest German authority on the subject (Lehrbuch der Geburtshülfe, 1877, p. 191), prefers the treatment adopted in the Rotunda Hospital during the third stage, to that recommended by his countryman Credé—the chief point to be aimed at being to insure the speedy and equable contraction of the uterus, and not the mere expulsion of the placenta.

We must content ourselves with mentioning a few from a long list of inaccuracies. On p. 310, Vol. I., he says that when the head is in the first position, if we examine at the commencement of the second stage our finger will impinge on "the *protuberance* of the right parietal bone." On p. 314 he tells us that "in the large majority of cases the *anterior* fontanelle descends first." On p. 210 he tells us that morning sickness of pregnancy usually commences about the third month. On p. 227 we read that paralytic affections are "comparatively common" during pregnancy; and, on p. 266,

that intra-uterine fractures "are not rare." We would like to know on what authority he states (p. 304) that "even in primiparæ, however, it (labour) is constantly terminated in one or two hours from its commencement." He entirely misunderstands the theoretical reason for lateral incisions of the perinæum, which he consequently thinks of little use, his grounds being (p. 334):—"When, however, a distended perinæum ruptures, its structures are so thinned that the tear is always linear; and, as a matter of fact, the edges of the tear are always as clean and as closely in apposition as if the cut had been made with a knife." The next sentence is still further opposed to our own experience:—"Moreover, the laceration invariably heals perfectly, if only the edges be brought into contact at once with one or two metallic sutures;" and lower down on the same page we are told "the sutures can be inserted with little or no pain." On page 364 we are told that "in face presentation the occiput is much more frequently directed to the right than to the left," which is contrary to the teaching of such authorities as Lachapelle, Naegele, Schroeder, Barnes, and a host of others. His treatment for retroflexion of the gravid uterus is so extraordinary that we shall make no excuse for quoting it at length. He first advises us (Vol. I., p. 238) to introduce a caoutchouc bag into the vagina, to fill it with water, and to leave it there. If this does not succeed we are to put the woman thoroughly under chloroform, and while she is in the ordinary obstetric position to introduce two fingers into the rectum, and try and reduce it in this way. If we are unsuccessful with two fingers, we are to introduce "the whole hand," and "*failing reposition through the rectum, an attempt may be made per vaginam.*" The italics are ours, and have seldom, we think, been more called for. The author objects to the hand and knee position as preventing the administration of chloroform, "which is of more assistance than any change of position can possibly be." In this latter we quite agree with him if he intends passing his whole hand into the rectum before trying what can be done by the fingers in the vagina aided by the knee-elbow position. After such treatment the following does not startle us (Vol. I., 227):—"In every case of paralysis (during pregnancy—*Rev.*), whatever be its nature, special attention should be directed to the state of the urine, and should it be found albuminous, *labour should be at once induced.*" When advising (Vol. II., p. 269) Lister's antiseptic treatment in cases of mammary abscess, he recommends the carbolic putty dressing, which has long ago been discarded by Lister himself in favour of carbolic gauze and a protective.

We cannot pass on to consider our third question without expressing, in the strongest terms, our dissent from the author's obstetric morality with regard to the Cæsarean section, which he expresses as follows (Vol. II., p. 215):—"We cannot fix one limit for the operation when the child is living and another when it is dead." To allow the life of the child to have no influence on the treatment seems to us little short of murder; and if by the Cæsarean section we could, *with certainty*, save the child's life, without inevitably sacrificing the mother, we think he would be a bold man who would dare to use the perforator.

Let us now consider whether the book before us is "clearly and logically written." If we turn to Vol. II., p. 37, we shall find the treatment of locked twins given. "The plan usually recommended (when the first is a breech and the second a head presentation—*Rev.*) is to decapitate;" and, further on, he adds, "or the head that is lowest may be perforated behind the 'right' ear or through the mouth, and subsequently crushed with the cephalotribe." Now, as the head "that is lowest" is the head of the second child, and is therefore presenting with the vertex, we cannot understand how it is possible to perforate it behind the ear or through the mouth, and we are quite curious to know why the author gives a preference to the "right" ear. The confusion is by no means lessened, as the author goes on to say—"Another mode of managing these cases is to perforate the 'upper' head, and draw it past the lower with the cephalotribe or craniotomy forceps. This plan has the disadvantage of probably sacrificing both children, since the 'first' child can hardly survive the pressure and delay, whereas the former (*sic*) gives the second child a fair chance of being born alive." Now, as the "upper" head is the head of the "first" child, and has been perforated, we quite agree with the author that there is not much chance of the child surviving the "pressure and delay." For fear there should be any mistake as to which is the "upper" head, the author gives a very good plate of locked twins, which is taken from Barnes's Obstetric Operations.

Another instance of confusion occurs in the chapter on the Mechanism of Labour. When explaining the cause of the descent of the anterior fontanelle in the second stage of labour, the head being in the first position, by virtue of which descent it gradually comes on a level with the posterior one, which is, of course, opposite the left foramen ovale, he says (p. 313):—"This change (in the relative position of the two fontanelles presenting—*Rev.*) is due to the

fact that the anterior end of the ovoid experiences greater resistance than the posterior, and as soon as this resistance counterbalances and exceeds that applied to the latter, *the former must descend.*" The "former" is the anterior end which does not descend, as is obvious to anyone already acquainted with the subject. We think, too, that there is a good deal of confusion in the chapter on Turning. Thus, on p. 163, he says:—"Some recommend us to seize both feet, others prefer one only, while some advise the seizure of one or both knees." We confess we know no way by which we can with one hand get a firm hold of both knees, and we were rather startled to read that one of the advantages of seizing the knee, instead of the foot, is, that "being nearer the spine, traction acts more directly on the body of the child" (p. 164).

The book abounds in contradictions, and we must again content ourselves by giving a few of the most obvious instances. On page 69 of Vol. II. we read—"When the antero-posterior diameter of the brim measures only three inches or less, it is *universally* admitted that the destruction of the child is inevitable, unless the pelvis is so small as to necessitate the performance of Cæsarean section." If we now turn to p. 73 we may there read as follows:—"Many obstetricians believe that it is possible to deliver a living child by turning in a pelvis contracted even to the extent of $2\frac{3}{4}$ inches in the conjugate diameter." The next instance is in the chapter on Hæmorrhage before Delivery, where he says (p. 81) that in cases of placenta prævia "the accuracy of our diagnosis may be confirmed, in doubtful cases, by finding that the placental bruit is heard over the lower part of the uterine tumour;" while, on p. 161, Vol. I., he has made the statement that the uterine souffle "is, however, most frequently heard at the lower part of the uterus, while the placenta is generally attached near the fundus; so that its position cannot be taken as any safe guide in determining the situation of that viscus." We will give just one more instance:—When speaking (Vol. II., p. 20) of artificial dilatation of a rigid os by means of the finger, he says:—"It is capable of being very useful;" and further down on the same page—"If properly performed, I believe it to be quite safe, and often of great value." If we now turn to Vol. I., p. 331, we shall find that, when speaking of the practice of pushing up a swollen anterior lip during the intervals between the pains, he says:—"This mode of assistance is very different from the digital dilatation of a rigid cervix, which was formerly much practiced in

Edinburgh, in consequence of the recommendation of Hamilton, and which was properly objected to by the great majority of obstetricians."

The following we quote, not exactly as a contradiction, but rather because it appears to us to border closely on the marvellous. When speaking (Vol. II., p. 216) of the time the child retains its vitality *in utero* after the death of the mother, he says:—"We can scarcely expect life to be prolonged for more than half an-hour at the outside." In the same paragraph, however, he quotes as authentic the case of the Princess Schwartzenburg, "who perished one evening in a fire in Paris, and from whose body a living infant is said to have been removed on the morning of the following day."

We have now given our reasons for considering the book before us neither exhaustive, nor reliable, nor clearly and logically expressed. As in the course of our investigation we arrived at the fact that the author does not read German, it is useless further to find fault with him for not giving references to the works of the German authors, whose names he makes use of so freely. We think, however, that he might have acknowledged more amply than he does the many obligations he is under to Dr. Carter's translation of Schroeder's Midwifery. We must also protest against the habit of using plates without giving, when it is possible, the original source from whence they come. We are not even told which of the plates in this book are original. We were, therefore, not surprised to see, in *The American Journal of Obstetrics* for January, 1877, Dr. Barnes's two plates of locked twins copied as "from Playfair." Some of the original plates are very bad, most notably one representing extraction with the long forceps (Vol. II., p. 183).

The only chapter in the book in which there is the slightest attempt at originality is that on Puerperal Venous Thrombosis and Embolism, in which the author tries to prove that what is generally known as pulmonary embolism, is really pulmonary thrombosis—or, in other words, that the clot is formed *in situ*, and not brought from a distance. We do not intend to criticise the chapter as a whole, but would only join issue with the author as to whether the blowing systolic murmur which was heard at the base of the heart in three out of his four cases, and which disappeared in a short time, "proves that the cause of the disease was at least cardiac." For Fritsch has lately shown (*Archiv f. Gynækologie*, VIII., p. 390), that such systolic blowing murmurs occur in a very large number

of healthy lying-in women. The subject is so new and so important that we shall venture to give his very words:—

"When first I directed my attention to the sounds of the heart, I often found such a well-marked and persistent murmur accompanying the first sound, that I was almost inclined to diagnose organic disease, such as mitral insufficiency. It appeared, however, from a number of further observations that in a very large number of puerperal women the first sound is changed into a soft blowing murmur. No *à priori* rule can be laid down as to the cases in which this is likely to be heard, for it may be absent in the most anæmic patients, and may be heard in the healthy and strong. The period when it makes its first appearance varies greatly. I have detected it as soon as two hours after delivery, while sometimes it does not appear for two or three days. It is heard most distinctly over the base of the heart or at its apex. When the patient is, however, in the recumbent posture it is almost useless to try and distinguish between the base and the apex, for in that position the lung very readily comes to be in front of the heart" (p. 391).

Slight causes—such as sitting up in bed, a glass of wine, or some inf. digitalis—often cause it to disappear. The presence, therefore, of such a murmur cannot prove that the patient is labouring under some cardiac affection, as the author thinks.

However, notwithstanding frequent and serious inaccuracies, this book contains much that is new to the student and to the general practitioner, though at present the wheat is so mixed with the chaff as to render careful winnowing necessary. If the inaccuracies were corrected, and the involved portions rewritten, the book might be looked on as a very good manual for students—a "treatise," in the true sense of the word, it can never be.

Clinical Lectures on subjects connected with Medicine, Surgery, and Obstetrics. By various German Authors. Selected, by permission, from the Series published by Professor R. Volkmann. New Sydenham Society. 1st and 2nd Series. 1876 and 1877.

The idea of bringing before the English-reading public a selection of some of the important lectures delivered by the most distinguished teachers in Germany, was, we think, a happy one. In these interesting volumes we are presented with a series of isolated essays which are of high practical value, and which reflect the opinions and practice of acknowledged leaders of the profession.

The first series embraces 15 lectures; the second, 16, including a wide variety of subjects, which it would be tedious even to enumerate. The interests and tastes of all classes of readers are provided for, and physicians, surgeons, and specialists will not seek in vain for instruction. We consider that these volumes are among the most useful undertakings of the enterprising New Sydenham Society, and we believe that they will be cordially welcomed as a solid contribution to contemporary medical literature.

Illustrations of Clinical Surgery. By JONATHAN HUTCHINSON, F.R.C.S. Fasciculus VII. London: J. & A. Churchill.

THE two plates issued in the seventh fasciculus of Mr. Hutchinson's work represent the affection known as Xanthelasma, and conditions which are apt to be confounded with it. The author thinks it is present in one per cent. of all women past middle-life; although, of course, its intensity is variable. Its situation is usually the inner canthus of the eye, usually attacking both upper and lower lids. In a number of cases sick headache was a prominent symptom, of which it does not appear that any particular notice has hitherto been taken. In a majority of cases the affection indicates liability to disturbance in the function of the liver, but this liability is quite compatible with long life and a fair average of health. In a small proportion of instances jaundice, with great hepatic enlargement, is met with, but the jaundice almost always precedes the Xanthelasma. The patches are always persistent, and usually tend slowly but steadily to increase.

The lithographs are admirable, and the accompanying letterpress contains a great number of valuable points.

The Surgery of the Arteries. By C. F. MAUNDER, F.R.C.S. London: J. & A. Churchill.

THIS little book is an elaboration, to a slight degree only, of the Lettsomian Lectures delivered before the Medical Society of London in 1875. The subject is treated comprehensively by Mr. Maunder, who, as an operating surgeon, has had extensive experience in the branch which he has here undertaken to write upon. The conditions which call for interference, the methods of ligature, and the material to be used, are all fairly considered. Some good woodcuts illustrate the book, which will, we think, be found a most useful one.

PART III.
HALF-YEARLY REPORTS.

REPORT ON NERVOUS AND MENTAL DISEASE.[a]

By Ringrose Atkins, M.A., M.D., &c.; Assistant Medical Officer, District Lunatic Asylum, Cork.

I. ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.

Functions of the Cerebral Cortex.—At a recent session of the French Academy of Sciences (rep. in *l'Union Médicale*, No. 89, July 29, 1876, and translated in the *American Journal of Nervous and Mental Diseases*), M. Vulpian read a communication by M. Bochefontaine, on the effects of faradisation of the cerebral cortex, which in substance was as follows:—

"The experiments of MM. Fritsch and Hitzig, reproduced by numerous experimenters, have shown that galvanic or faradic excitation of certain points of the grey cerebral cortex causes movements in various parts of the body, and particularly in the members.

"Basing themselves on these results, different authors, adopting the opinion of MM. Fritsch and Hitzig, have considered these points of the brain as centres for voluntary motion; but not all physiologists have adopted this explanation of the experiments in question. M. Vulpian has many times declared, during his course, that he did not care to go at present beyond their immediate signification. These experiments, according to him, prove only one fact beyond doubt—viz., that certain parts of the cerebral hemispheres are excitable by electricity; and from certain indications he has expressed the idea that the electrisation of the points designated as centres for voluntary movements of the members ought to act on all the organs, the activity of which is called out by reflex action under the influence of the excitation of sensory nerves.

"It is this idea that has induced me to study in the dog the influence of faradisation of the points called *centres for voluntary movements of the members*, on different apparatuses of organic life,

[a] The author of this Report, desirous that no contribution to the subject of Nervous and Mental Disease should remain unnoticed, will be glad to receive any publications which treat of it. If sent to the correspondents of the Journal, they will be forwarded.

which are not directly under control of the will. Some of these experiments relative to the circulation and the secretion of the submaxillary gland, were made in collaboration with M. Lepine in M. Vulpian's laboratory. The other researches were undertaken by me alone.

1. "By means of the mercurial kymographion it is established that faradisation of the so-called motor centres for the limbs produces generally an elevation of the intra-carotidian blood-pressure of from 14 to 16 centimetres. At the same time the cardiac pulsations are slowed. Sometimes, under the influence of only one excitation, we observe alterations of acceleration and retardation of the pulse, and the mean tension feeling the oscillations, though all the while higher than before the faradisation. Such is the course of the phenomena when the nervous system is intact.

"It is well known that the pressure rises, and the pulse is accelerated when both vago-sympathetics are divided in the neck. If we then faradise the gyrus, the arterial tension still rises, but the cardiac systoles are slowed.

"In many experiments the section of the vagi alone, between the superior cervical ganglion and the base of the cranium, modified the effects of the faradisation of the brain. The blood-pressure, instead of increasing at the moment of faradisation, was lowered from four to five centimetres, and the pulse was slowed.

2. "It is known that faradisation of the sigmoid gyrus causes an immediate and considerable dilatation of the pupil. In an animal whose cord had been cut across in the cervical region this faradisation still caused a rapid dilatation. But in this experiment the excitation could not have followed the course of the cervical sympathetic; it is probable that it reached the encephalic isthmus, whence it was conducted to the ophthalmic ganglion of each side by the sympathetic nervous fibres coming from that part of the encephalon.

3. "Faradisation of the brain causes hypersecretion of the parotid and submaxillary glands, to the degree of immediately doubling the secretion of saliva from these glands. This fact may be utilised in physiology to collect the parotidian saliva.

4. "The stomach and intestines are influenced by stimulation of the centres for the members.

"The pyloric portion of the stomach contracts strongly for an instant; then the peristaltic and the antiperistaltic movements are retarded or suspended. I have observed these results with M. Leven. The intestinal walls contract in an irregular manner.

5. "The bladder contracts and expels more or less completely the contained urine.

6. "The spleen contracts so as to diminish to one-third of its former volume.

7. "If we insert canulas into the ductus choledochus, and the duct of Wirsung, also those of Steno and Wharton, we perceive that the bile and pancreatic fluid cease to run when the faradic current is passed through the sigmoid gyrus, while the parotid and submaxillary glands secrete abundantly.

"All these facts concur to prove that faradisation of the points called *motor centres for the members*, act on the various apparatuses of organic life. Therefore, while even we suppose that these parts of the grey cortex are the seats of excitory power for the voluntary movements of the limbs, we are led to attribute to them another order of functions, as the same irritation simultaneously provokes the activity of the muscles of organic life (vessels, iris, spleen, for example), and the glands, such as those for secreting the saliva.

"But we must say that all these facts, those which concern the movements of the limbs, as well as those of which this communication treats, do not prove that the grey cortex is excitable by faradic currents.

"In fact it is necessary, in order to produce these effects, that the faradic current should be rather strong. The current that causes movements of the members, and contracts the spleen when applied to the convolution of the gyrus; this same current stimulates the radial nerve through the tissues that cover it, at the level of the lower third of that nerve, in such a way as to provoke contraction of the muscles animated by that nerve. It is beyond doubt that the faradic current diffuses itself through the tissues, as well as those of the brain, skin, and muscles, as is proven, moreover, by the galvanometric experiments of MM. Carville and Duret, and, in consequence, we are justified in attributing the effects produced, not to excitation of the grey matter of the cortex, but of the white matter below it.

"We may admit that in the white substance situated below the parts experimented upon, there are excitable fibres in relation, by their deep terminations, with the direct centres of excitation of the muscles, smooth and striped, and of the glands. These fibres are irritated by the electric current, and they put in action the excitory centres.

"But if the excitability of the grey cortical substance is not

demonstrated by all the experiments, the existence of motor centres for the members, localised in special parts of this substance is no better proven, and needs to be supported by further facts to be put beyond doubt."

Goltz (*Pflüger's Archiv.*, XIII., 1st May, 1876) publishes a lengthy article, detailing his experiments on the brains of animals. His method was to trepan the skull and wash out portions of the brain substance with a jet of warm water—the vessels, to a great extent, being avoided by this procedure. He thinks, from these experiments, that the extent of the injury is of more importance than its locality in causing disturbance of function. Thus, he says, the character of the disturbance is the same whether the trephining was performed over the anterior margin of the so-called irritable zone of Hitzig, or back in the region of the posterior lobes. This is not, of course, in agreement with other observers; the reason may be, and probably is, in the comparative coarseness of Professor Goltz's method. His results are, however, of great interest; the observations were directed to the disorders of sensibility, of vision, and of motility caused by destruction of a portion of the cerebral substance of one hemisphere.

In regard to the first of these, he found that the destruction of a considerable portion of the brain of a dog caused, almost at once, a decided loss of sensibility upon the opposite side of the body; it appeared quite anæsthetic, the anæsthesia diminishing in a short time, but still leaving impaired sensibility, especially to pressure.

A considerable portion of one hemisphere was removed by Goltz's method, in a dog. The animal, immediately after the operation, was found to be blind in the eye of the opposite side, which, however, recovered its functions in a few days, at least in part. Still there seemed to be a defect in vision; objects that formely excited anger or fear did so no more; he did not appear even to distinguish a piece of meat laid near him on the right. A very interesting series of experiments were performed on another dog that had been submitted to several of these operations and the well eye removed. The author, holding that each eye is in relation with both hemispheres, rejects the theory of Lussana and Lemoigne—that visual sensations in such cases have lost their perceptive centre on the opposite side of the brain, and supposes instead that there is only an imperfect perception, which, while allowing the animal to progress without running against obstacles, does not enable him to

ascertain their nature. He rejects any theory of psychic disturbance causing the phenomena.

The disorders of motility are the most striking results of injury to one hemisphere of the brain. The first consequence is a motor paralysis of the opposite side, which, however, soon disappears, as far as locomotive motility is concerned; but the animal is still unable to perform certain acts as well as previously. Thus, the animal is unable to give the foot of the side opposite the lesion at command, though it formerly did so. Other peculiarities, such as a tendency to stand on three feet, were also noticed at a late stage; while, in progression, all four were used.

Dr. Goltz divides the symptoms which follow injuries to the brain into two classes—the temporary or phenomena of inhibition, and the permanent or abatement symptoms (Ausfallserscheinungen). The first of these, the paralysis, &c., are, he claims, due to an inhibitory influence exercised from the injured cortex to the motor centres. These, after a time, recover their irritability and functions. The condition is similar to that after section of the cord in a dog, which is followed by paralysis of the sphincters, bladder, &c. It does not follow that the centres for these organs are cut off, for that has been proven not to be the fact, but they suffer an inhibition caused by the injury. The second series of symptoms, lasting in their character, are, he holds, due to the injury of the nerve substance; such are the inability to correctly distinguish pressure and form, or to perform certain movements.

After the injury had been recovered from for a long time, and the animal was then killed, the injured side of the brain is found to present a marked difference as compared with the other. The convolutions are fewer and less sinuous, and the hemisphere appears like that of an animal lower in the grade of nervous organisation. The cause of this is evidently that the half of the brain, thus relieved from pressure of its surroundings, increases in volume, and fills up the cavities without fully restoring the organisation.—(*Am. Jour. Nerv. and Ment. Diseases.*)

Mechanical Irritation of the Dura Mater.—The following are the conclusions of a note by M. Bochefontaine, presented by M. Vulpian to the Acad. des Sciences, Aug. 7 (rep. in *La France Médicale*). It seems an established fact that mechanical excitation of the cranial dura-mater of one side may cause contractions of one or several muscles of the corresponding side of the face. To obtain this result, the excitation may be slight, or the animal may be anæsthetised to a

certain degree. A stronger mechanical excitation causes, simultaneously with the facial muscular contractions, movements of the members of the corresponding side; and if the irritation is still more intense, then follow movements of all four limbs—those of the corresponding side being most violently agitated.

The Physiology of the Cerebellum.—The following are the results of a series of experimental researches by Professor H. Nothnagel and published in a preliminary communication in the *Centralblatt, f. d., Med. Wissensch*, No. 22:—

1. The cerebellum is mechanically irritable by very minute needle-pricking.

2. The motor phenomena due to its excitation may be induced by irritation of various points in the hemispheres and the vermis; it is not necessary that the mechanical irritation shall reach the deeper lying parts near the radiating fibres from the crus.

3. Mechanical irritation of one hemisphere of the cerebellum causes motor phenomena first on the same side and then on the opposite side of the body; the same effect follows irritation of one side of the vermis. Irritation of the vermis in the middle line causes simultaneous bilateral motor phenomena.

4. The greater portion of (*a.*) one hemisphere or (*b.*) of both hemispheres, *i.e.*, with the exception of the direct radiating fibres from the crus—or (*c.*) the whole anterior (frontalward) and upper (dorsal) parts of the vermis may be destroyed and the animal betray no effects for days.

5. Destruction of a particular part of the vermis, on the other hand, produces well marked motor symptoms, durable in their character, which agrees with those described by Flourens. The animals employed in these experiments were rabbits. A more extended account of them is promised.

A New Cerebral Convolution.—M. Luys called the attention of the Soc. de Biologie, at its session of June 24th, rep. in *Le Progres Médicale*, to the existence, in certain cases, of a supplementary cerebral convolution parallel to and behind the ascending parietal convolution. He had met with it in two women, dying, one at eighty, the other at ninety-eight years of age, without ever having given evidence of any disorders of sensation, motility, or intelligence. Moreover, this supplementary convolution, which is met with in many cases, is always found only on the left side. It will be of interest to ascertain whether or not it indicates a more perfect cerebral development.—(*Am. Journal of Nervous and Mental Dis.*)

II. CEREBRO-MENTAL PATHOLOGY AND HISTOLOGY.

The Effects of Peripheral Lesions on the Convolutions of the Brain.—M. Luys, at the session of the Soc. de Biologie, July 8 (rep. in *Progres Médicale*), gave an account of some observations made by himself on the effects of certain peripheral lesions on the conformation of the cerebral convolutions. He had observed four cases tending to prove that when the sensibility of a region was suppressed for a long period it produced resorptions of tissue in the brain, and in certain definite points. In the first case, a woman who died twenty years after having undergone amputation of the right limb, M. Luys found a notable atrophy of the left ascending convolution. The atrophic process had even extended as far as the corresponding region on the right side, by way of the commissural fibres of the corpus callosum. In a woman who had been absolutely deaf for forty years, M. Luys found, besides atrophy of the acoustic and glosso-pharyngeal nerves, a very abnormal arrangement at the horizon of the ascending convolutions. The fissure of Rolando was filled at one point by a kind of bridge of brain substance thrown across between the convolutions. The third case was a woman amaurotic for twelve years. At the level of the two first frontal convolutions, there were little superficial ulcerations of the cerebral substance. Lastly, in a woman, aged twenty-nine, who had been unable to move on account of chronic rheumatism, M. Luys observed a very well marked deformity of the folds of the ascending parietal convolutions.—(*Am. Journ. of Nerv. and Ment. Diseases*).

Cerebral Localisations.—M. Charcot, in some remarks made at the session of the Soc. de Biologie, July 25 (rep. in *Gaz. des Hôpitaux*, No. 83), divided the cerebral localisation of the lesions in disease into two classes—the deep, and the superficial or cortical. Of the first class, he remarked, only one could be said to be absolutely determined; it is when the locality of the lesion is behind the internal capsule, and is revealed by a hemi-anæsthesia. This was the only localisation admitted by him in the deeper portions of the brain.

Among the superficial or cortical localisations he admitted only those in the system of the paracentral lobe—these were manifested by motor troubles. In the system of the paracentral lobe, he included not only this lobe itself, but also the ascending frontal

convolution, and the ascending parietal convolution of the internal surface, of which the paracentral lobe is only the expansion.—(*Am. Jour. of Nerv. and Ment. Dis.*)

In the *Annales Méd. Psychologiques*, for Jan., 1877, is an interesting paper, by Dr. Achille Foville, fils, on "The relations between the motor troubles in general paralysis of the insane, and cortical lesions in the fronto-parietal convolutions," of which the following are the conclusions arrived at:—

1. General paralysis of the insane has for its pathognomonic characters, from the symptomatic point of view, constant motor troubles; from the anatomic point of view, constant alterations in the cortical substance of the fronto-parietal convolutions.

2. The most recent works tend to attribute the motor troubles in general paralysis to the histological modifications more or less evident in the medulla and cord; any relation of cause and effect cannot then be established between the constant anatomical lesions, and the equally constant symptomatic manifestations.

3. The discovery, by Hitzig and Ferrier, of an excitable and motor region on the surface of the convolutions in the central portion of the cerebral hemispheres allows this relation to be established.

4. The existence in the excitable region of convolutions, of distinct motor centres for the upper and lower extremities, for the head and neck, the face and lips, and for the eyeball and eyelids, allows of an exact localisation of ataxies, convulsions, contractions, and partial paralyses, limited to certain organs in general paralysis.

5. It is primarily by the excitations which they produce in the different motor centres—the hyperæmia, at the outset of the disease, the successive congestive attacks at the middle period, followed by the progress of the sclerous degeneration towards the decline—that the progressive troubles of motility are explained, such as the embarrassment of speech, the fibrillary spasms of the lips and cheeks, the ataxy, and dissociation of movement of the members, the grinding the teeth, the contraction or dilatation of the pupil, the convulsions limited to a single muscle, or a localised group, the unilateral epileptic attacks, the partial or transient hemiplegias, the persistent contractures, and, finally, the paralysis more or less complete.

6. *En résumé*, in general paralysis, the cortical lesions of the fronto-parietal convolutions, are the direct cause of the motor troubles; on the localisation and intensity of these lesions depend

the localisation and intensity of the ataxic, spasmodic, and paralytic accidents.

Carl on the Morbid Anatomy of the Brain.—Dr. Carl (Virchow's "Archives," Jan., 1877) has the following remarks on the subject of leucocytes in the brain substance:—

1. In the cortical substance of every brain, even the most normal, many white blood-corpuscles are to be found.

2. Retardation of the circulation and œdema of the brain bring about an increase in their number.

3. The corpuscles lie in the perivascular sheaths, and in the pericellular spaces.

4. They never enter the substance of the nerve-cells, nor give rise to irritation or nuclear proliferation in them.

5. Brain phenomena are not caused by their presence, or by their increase, or by the retardation of the circulation and œdema, if these take place gently; but are only observed as the outcome of an acute increase in those cases in which the fever process, and the cause of the fever, have to come into the reckoning.

In a case of croupous pneumonia he has found giant pyramidal cells, such as were described by Krause (and by Batty Tuke, Rutherford, Major, Mierzejewski, and others), in the brains of the insane.

In a case of chronic emphysema, and in one of chronic myocarditis, he has observed the bodies described as amyloid by Virchow, and often found in insane brains.

In a case of acute phosphorus poisoning he found leucin and tyrosin in the brain substance, with fatty degeneration of the nerve-cells and neuroglia and large fatty globules in the capillaries; the last named being like the fatty embola after injuries of bones.—(*London Medical Record*, April, 1877).

In *The American Journal of Insanity* for January, 1877, is the following abstract of a paper by Pr. Rud. Arndt, of Griefswald, on some points in connexion with the pathological anatomy of nerve-fibres.

1. *Pigmentary Degeneration of the Medullary Sheath of Nerve-fibres.*—In the intervertebral ganglia of a paretic, with tabetic symptoms, who was confined to bed during the last three years of life, Arndt found a peculiar degeneration of the nerve-fibres. The medullary substance was transformed into a grumous mass of a dark brown colour, which often but loosely enveloped the axis cylinder. In isolating the fibres these masses frequently slipped out of the primitive sheath, forming aggregates quite similar to pigment bodies formerly observed by the author ("Archiv. f. Psychiatrie," I., p. 775).

He concludes that these also were very probably products of a decomposition of the medullary substance, and that their occurrence indicates an atrophy of the nerve-fibres, which commonly originates in the medullary sheath.

2. *Tubular Degeneration of the Medullary Sheath.*—In partial softening of the spinal cord, and in grey degeneration, the author observed, by examining transverse sections coloured by carmine, the medullary sheath to consist of concentric layers. As the medullary substance showed an inflated condition there was no doubt of a pathological alteration; but still Arndt believes that it also establishes the true structure of the sheath, which normally, very probably, grows by forming concentric layers.

3. *Splitting of the Axis Cylinder.*—In the spinal ganglia of the same paretic mentioned in No. 1, and in the ganglia Gasserii of another paretic who had shown no tabetic symptoms, Arndt frequently found fibres deprived of the medullary sheath, the axis cylinder of which exhibited a peculiar degeneration. The changes were mostly observed in thick and broad fibres; treated with carmine they showed a pale greyish colour, interwoven with red streaks, which, in eight hundred diameters appeared as small bands, varying in number from three to five. A similar division of the axis cylinder into its primitive fibrillæ has been observed by Remak, Neuman, Eichorst, and Westphal in lead paralysis. It remains still undecided whether this degeneration is combined with a hypertrophic condition, or with that of a simple swelling.

4. *Nucleated Nerve-fibres.*—In the brain and spinal cord of persons only who died insane, Arndt recently observed nerve-fibres of which the axis cylinder was covered with oblong nuclei. He tries to explain this occurrence by referring to the development and growth of the fibres. In the normally and fully developed fibres these nuclei disappear, and thus the author claims their presence to be the result of an arrest of development.

In the same journal is a paper by Dr. J. P. Gray, on "Pathological Researches," read before the Association of Medical Superintendents of American Institutions for the Insane. The author, following Rindfleisch, treats the general morbid changes under the heads of infiltration and involution, and discusses the four recognised forms of each—viz., infiltration—the amyloid, the calcareous, the pigmentary, and the fatty; involution—the fatty, the cloudy swelling, the mucoid softening, and the colloid degeneration. Passing thence to the special conditions in the brain and other

nerve-centres, he states that from examinations of cases of unmistakable insanity, with the exception of colloid degeneration, the conditions of involution are more frequently found in acute insanity, while in the chronic and progressive stages of the disease, conditions of infiltration prevail. He then proceeds to describe the occurrence of hyperæmia and congestion passing frequently into complete stasis and embolic packing of the vessels, resulting in either localised, or more extended, anæmia of the nerve tissue, and followed by a fatty involution of the vessels and their contents, and an unnourished condition of the nerve-cells, neuroglia, and nerve-fibres, which finally in turn undergo one of the processes of degeneration, the order being, he believes—1. The vascular system; 2. The connective tissue or neuroglia; and 3. The nerve-fibres. These changes embrace the entire range of pathological anatomy, and in chronic cases all may be found coexistent, the different products bearing a relation in some degree to the progress of the disease. The various changes described were illustrated by numerous photo-micrographs on glass, thrown on the screen by the aid of the magic lantern, which enlarges the specimens more than twenty thousand diameters.

Pathological Anatomy of Chorea.—In the *Annales Méd. Psychologiques* for September, 1876, is an abstract of a paper by Dr. Elischer on this subject from *Virchow's Archives.* The author states that Rokitansky was one of the first who has demonstrated in the nerve-centres in chorea the occurrence of a hypertrophy of the interstitial tissue, while the beautiful researches of Meynert assign the grey substance of the great central ganglia as the real seat of the disease. Dr. Elischer had an opportunity of making an autopsy on the body of a woman attacked with chorea, who died from puerperal endometritis three days after parturition. He found, both in the peripheral nerves (the sciatic and median) and in the brain and cord, a hypertrophy of the connective tissue, an atrophied and opaque condition of the nervous elements, a disappearance of the axis cylinders of the nerve-fibres, an engorged state of the capillaries, little sanguineous extravasations, and an abundant formation of granular and fusiform nuclei. The nerve-tissue of the lateral and posterior columns of the cord resembled a coarse feltwork stuffed with these nuclei. [The conditions here mentioned closely correspond, at least as far as the vascular changes are concerned, with those described by Dr. Dickinson in his now well-known paper, published in the recent volume of the *Med. Chir.*

Trans., to which I need only now refer, and which has lead to considerable discussion on this subject.—*Rep.*]

The Lesions in Paralysis Agitans.—Lautenbach, of Vienna, in a paper on this subject (*Amer. Journ. of Nerv. and Ment. Dis.*), states that from an analysis of the recorded autopsies in cases of this disease, and in that of multiple cerebro-spinal sclerosis, in which affection paralysis agitans occurs as a symptom, he finds the pathological lesions to be invariably located in some part of the tract which has been designated by Meynert the "Willensbahn" (way for the impulses of the will), that is, the fibres passing from the grey matter of the anterior lobe to the nucleus lenticularis, and corpus striatum, the fibres of the peduncles, and the pyramidal fibres, together with their continuation in the spinal cord down to the origin of the motor nerves; hence he believes himself justified in regarding the symptoms of paralysis agitans as due to an irritation of the regulating or co-ordinating fibres in the voluntary or motor tract of the brain, which fibres pass from the peripheral grey matter of the cerebrum through the motor ganglia (probably the nucleus caudatus) and the pedunculi cerebri to the cerebellum.

III. TREATMENT OF MENTAL DISEASE.

Therapeutic Action of Hyoscyamine.—Dr. R. Lawson, of the West-Riding Asylum, in *The Practitioner* for July, 1876, reports his experience of the use of this drug. He was lead to its therapeutic administration from the fact that its physiological action produced a subdued form of mania, accompanied by almost complete paralysis of the voluntary muscles, and ending in quiet and refreshing sleep. In cases of recurrent, acute, and subacute mania, it has proved to have the effect of calming excitement, the patients awakening from the sound sleep which it produces, either in a state of complete quietude, or in a condition of milder mania, with a diminution in intensity of delusions and hallucinations which they may have been previously labouring under. Dr. Lawson records several cases where its administration was attended with the most happy results. He administered the doses according to the following formula:—

℞.—Hyoscyamine, - - gr. i.
Sp. Etheris, - - ♏ viij.
Alcoholis, - - ♏ xxiv.
Aq. font., - - ad. ℥i.
M. ut fiat haustus.

In the cases reported, one dose has generally had the desired effect. The disadvantages of the drug are, "that the dose required to combat extreme excitement may also be sufficient to produce such a physiological action on the heart and respiratory system as to cause danger to a frame wasted (as generally occurs in such cases) by prolonged fury, starvation, and loss of sleep."[a]

Lactic Acid as a Hypnotic.—Dr. E. Mendel (*Deutsche Med. Woch.*), as a result of his experience, arrives at the following conclusions:—Lactic acid is an efficient sleep-producing agent in many cases, though not in all, and this last may also be said of morphia and chloral. In cases where pain is the cause or accompaniment of sleeplessness, lactic acid is not indicated; it is recommended, on the other hand—

1. For insomnia occurring in the course of general asthenic diseased conditions, such as commonly occur during convalescence from serious disease.

2. For the quieting or calming of insanity, especially the painfully irritating forms.

3. Experimentally, its methodic employment is recommended in certain psychic disorders in which the exact indications for future treatment are still in reserve.

M. Jerusalimsky, in a paper on the same subject, records the clinical effects in twenty-two cases of sleeplessness in the course of quite different disease, among them five cases of hysteria, and only in a very small proportion was the effect *nil* or undecided. In most sleep followed the administration in one half to one hour. A fact published by Lothar Meyer (*Virchow's Archiv.*, 1876, Heft I.) is noteworthy in this connexion—viz., that the addition of a very small amount of lactate of soda to morphia in obstinate hysterical sleeplessness is very effective. Contra-indications to these remedies are any kind of disorders of the intestinal tract.—*Am. Journ. of Nerv. & Ment. Dis.*

[a] I am unavoidably deterred from reproducing in this report any of the matter contained in the recent valuable volume (VI.) of the West Riding Asylum Reports, which on this occasion appears under the continued editorship of Drs. Creighton Browne and Herbert Major. I append here, however, the formula which Dr. Lawson now uses in the administration of hyoscyamine, taken from its pages :—

℞.—Hyoscyamine,	- - -	gr. $\frac{3}{4}$.
Sp. Etheris,	- - -	♏ vi.
Alcoholis,	- - -	♏ xviii.
Aq. font.,	- - -	ad. ℥ii.

M. ut fiat. haustus.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

THIRTY-NINTH ANNUAL SESSION.

Saturday, May 12th, 1877.

THOMAS MORE MADDEN, Vice-President, in the Chair.

Ovarian Cyst.

DR. ATTHILL exhibited a very large ovarian cyst, which he had removed on the preceding Monday from a patient in the Rotunda Hospital. She was a young woman, aged only nineteen. About a year ago, her general health being good, and menstruations normal, she perceived her abdomen to enlarge. In April, 1876, it having attained a great size, she was tapped by Dr. Rawson, of Carlow; on two subsequent occasions she was tapped by Dr. Clibborn, of Kiltegan; the last time being a few weeks since. Since the last tapping she enlarged very rapidly. On her admission to the hospital, about a fortnight ago, she measured 48 inches round the abdomen. The existence of a large unilocular ovarian cyst was diagnosed, and its immediate removal decided on. The operation, which was performed on Wednesday last, was accomplished without difficulty. The cyst was exposed and tapped, and the fluid evacuated, without the escape of a single drop into the abdomen. From first to last not two ounces of blood was lost. Ether was the anæsthetic used; it was administered by Dr. Ormsby, by means of his new apparatus, with very great success. The patient was forty minutes on the table, during which time she consumed only two ounces of ether, and there was no vomiting, either then or subsequently. To-night her pulse is about 98, and her temperature 100°. She has no pain or discomfort. The sutures were removed this morning. I have no doubt but that the case will have a favourable issue. There were no adhesions anywhere, save a slight one to the omentum which was cut off.

Amputation of the Uterus, in a Case of Chronic Inversion caused by a Fibrous Tumour. By Arthur V. Macan, M.B., &c.

There can be but little doubt that cases of inversion of the uterus are becoming rarer every day, and will be still less frequently met with when expulsion of the placenta by pressure over the fundus instead of by traction on the cord has become the rule among the profession. But even if injudicious treatment of the third stage of labour had ceased to be a frequent cause of this accident, we would still meet with cases of spontaneous inversion, which, for the sake of greater clearness, we may divide into three classes—1, those occurring immediately after delivery; 2, those caused by some tumour; and, lastly, those occurring in the undilated, unimpregnated uterus. The case I have the honour of bringing before the Society to-night, and for the opportunity of reporting which I am indebted to my friend Dr. C. E. Ryan, of Emly, in the county Tipperary, belongs to the second of these classes.

Case.—Bridget Heffernan, aged forty-six years, unmarried, never had a child. Menstruated first at the age of fourteen and was regular till about fourteen years ago, the flow being, however, profuse and lasting four days. Fourteen years ago she was attacked with menorrhagia, the hæmorrhage recurring about every fourteen days for four years, and being very profuse. During this time she fainted very frequently, and her life was more than once despaired of. Since then the floodings have not been so frequent, and have appeared at irregular intervals. About six years ago, however, she had a very violent attack, and her life was again despaired of. Her symptoms during the intervals were not well marked, and consisted of slight pain in the back, constipation, and moderate leucorrhœa. She had no difficulty in micturition at any time, nor any bearing-down pains. Although she had been treated both in this country and in America for menorrhagia no vaginal examination was made till after inversion had taken place. Has latterly enjoyed excellent health; has been quite regular, and has followed, without any discomfort, her occupation as an egg-merchant. Was last unwell on June 15th, 1876, and was regular both as to time and the amount of discharge. Since that time she has suffered greatly from constipation, and noticed that a small tumour used to appear at the vulva when she was at stool. Though she had some dragging pain over pubis, this gave her no anxiety, as she was always able to push the tumour back again with her fingers. On July 30th she took a long walk, and afterwards as she was sitting at dinner a large tumour was suddenly protruded from the vulva, and some slight hæmorrhage took place. A few hours afterwards she was seen by Dr. Ryan, at which time she had no symptoms of collapse, her pulse being 90 and her temperature normal. A tumour somewhat larger than a goose's egg was then protruding from

the vagina; it was irregularly oval in shape, of a dark, deeply-congested colour—one might almost say black, and when grasped gave the sensation as of a solid ball of Indiarubber. On making a vaginal examination the tumour was found to have a long pedicle, which could be traced upwards as far as the os, by which it was tightly embraced and the lips of which felt as hard almost as bone. A careful bimanual examination failed to detect the body of the uterus in its normal position, and the finger in the rectum readily made out the tip of sound introduced into the bladder. Dr. Ryan, therefore, came to the conclusion that it was a case of inversion of the uterus caused by a fibrous tumour, though he was at the time unable to say exactly where the uterus began and the tumour ended. The only symptoms of which the patient complained were a constant desire to pass water, and an uneasy dragging feeling over the pubis when the tumour was allowed to hang unsuspended from the vulva. At no time did she complain of any pain in the tumour, even when it was firmly squeezed, but immediately complained when the pedicle was roughly handled, and especially when any attempt was made to draw the tumour downwards or to rotate it on its axis. On the 30th and 31st of July, Dr. Ryan made prolonged and determined efforts to reduce the inversion, but failed to make any impression on the os, which embraced the pedicle, as he expressed it, "like a vice." The case was seen by several other practitioners, some of whom considered it a case of fibrous polypus, but all of whom considered the tumour irreducible. Two days afterwards it had descended much lower, and on making a vaginal examination Dr. Ryan found that the os had disappeared, and that the pedicle of the tumour was continuous all round with the vaginal walls—a further proof, if such had been required, that the case was one of inversion.

On the eighth day after the tumour had appeared externally it began to slough. The patient then developed slight constitutional symptoms, and on August 11th her pulse was 120, and her temperature 102°, a condition probably caused by absorption of the decomposed discharge. The treatment consisted in syringing out the vagina thoroughly three or four times daily with a weak solution of carbolic acid, covering the tumour with tenax steeped in carbolic oil, and supporting it with a T bandage, while internally the patient took a mixture of Tinct. Ferri Perchl. and quinine three times a day, with an opiate at night.

I saw her for the first time on August 15th, and found her constitutional symptoms somewhat better than they had been—the pulse being, however, very small and weak, the tongue coated, and her temperature over 99°. On placing her in the ordinary obstetric position and exposing the vulva, a large pedunculated tumour was seen, the pedicle being so long that the tumour, enveloped in a mass of tenax, rested without dragging on the bed. On removing the tenax the odour from

the part that had become gangrenous was rather strong. On making a careful examination, I found that the pedicle was not inserted into the centre of the tumour, as it would be in a case of polypus, but into one end of it, and the pedicle seemed to be too long for that of a polypus, there being fully two inches of it outside the vulva, and it was, moreover, of the same diameter throughout. On grasping the tumour it was firm and unyielding, and not in the least sensitive. The pedicle, on the contrary, was softer and very sensitive when squeezed. I therefore had no hesitation in saying that the tumour was a submucous fibroid which had caused inversion, and that the apparent pedicle was the uterus itself. On introducing the finger into the vagina, a quantity of thin, stinking pus escaped. The vagina itself was not at all shortened, and, as before mentioned, the pedicle of the tumour was continuous on all sides with the roof of the vagina. As my diagnosis agreed entirely with that made by Dr. Ryan, and also by Drs. Hartigan and M'Kenna, who were then present, it only remained to determine what operative interference was necessary. After consultation it was agreed, first to remove the tumour, and afterwards to make another attempt to reduce the inversion. In order to avoid as much as possible the risk of opening into the sac of the peritoneum, I thought at first of incising the capsule of the tumour and then enucleating it; but on making a slight incision through the mucous membrane at the base of the tumour, the hæmorrhage, owing to the great congestion of the parts, was so considerable that I determined to use the wire ecraseur instead. The wire of that instrument was, therefore, passed over the tumour, and as it was tightened very slowly by one of the gentlemen who assisted me, I kept it as close as possible to the base of the tumour, with the object of cutting through the substance of the tumour rather than through the parenchyma of the uterus, and so preventing any chance of the sac of the peritoneum being opened. On examining the uterus after the removal of the tumour, the place where the latter had been attached was found to be somewhat larger than half-a-crown, and had the shape of a hollow cone. There was no furious hæmorrhage, but a constant oozing took place which did not cease even when the parts had been touched with the perchloride of iron. As I thought the hæmorrhage might be increased by any subsequent efforts to replace the organ, I brought the edges together with three strong silk sutures, after which there was no more hæmorrhage. I then with great difficulty introduced my left hand into the vagina, the parts being so small and unyielding that the perinæum was ruptured to a slight degree before I could accomplish it. The vagina was long, narrow, and very undilatable, and the difficulty of making the least movement with the fingers considerable. After using my utmost endeavours for about a quarter of an hour to reduce the inversion, at the end of which time my hand was quite incapable of further exertion,

without having made the slightest impression on the hard rim of the cervix, I withdrew my hand, and a consultation was held as to whether we should leave the case as it was, or should proceed to remove the uterus. After due consideration we determined to adopt the latter course, our chief reasons for so doing being that the woman's age and unmarried condition did not make the mere saving of the organ of very much importance, while the dangers and difficulties of any attempt at reinverting it were greatly increased by the small, rigid, undilatable condition of the vagina and cervix. Judging from the sloughing of the tumour and the very fœtid discharge from the vagina, it also seemed likely that the uterus itself might become gangrenous from the pressure of the cervix; and the rigors and sweatings the woman had already had made us fear septicæmia. There was, of course, in addition to these the fact that Dr. Ryan had made two unsuccessful attempts at reduction, and I had made one. In order to prevent the chance of the cut end of the cervix retracting out of reach, and also to control the hæmorrhage, I placed a strong whip-cord ligature round the upper part of the cervix, and drew it tight. Below this I applied the wire of the ecraseur, and, working the screw slowly, removed a large portion of the body of the uterus. Some hæmorrhage followed the operation, and in consequence of the escape of blood from the congested cervix, the ligature, which before embraced it tightly, became quite loose, and I could pass my finger without difficulty into the peritoneum. Thinking that if I returned the stump the ends might become reinverted and secondary hæmorrhage take place into the peritoneum, I determined to pass three sutures through the part of the uterus that was left behind, and thus prevent the possibility of secondary hæmorrhage, and, as I thought, lessen the probability of peritonitis, by causing immediate union of the two inverted peritoneal surfaces. In this case I left the ligatures long, in order that if there should be any hæmorrhage after I had left, Dr. Ryan could draw the stump down into view, and pass another suture if necessary.

Before the patient was put under chloroform she was given a glass of brandy, as the pulse was very small, quick, and feeble. After the operation, though there had been no sudden collapse when the uterus was removed, the patient was so weak that I gave her some ether subcutaneously (℥ss.), and some opium by the mouth to prevent pain, and then left the patient in the care of Dr. Ryan, who has kindly furnished me with notes of the further progress of the case. She vomited the same evening, and complained of some pain in the abdomen a little below the umbilicus, for which she was given large doses of opium. At no time had she any symptoms of peritonitis, but her temperature was for some days over 100°, and her pulse very small and feeble. A week after the operation she was attacked with diarrhœa, which resisted all remedies, and nearly carried her off. For some days

after the operation there was a considerable discharge from the vagina, which was prevented lodging by placing a small plug of tenax inside the vulva, and injections of carbolic acid were used three times a day.

On the 24th of August, or a little more than a week after the operation, Dr. Ryan made a vaginal examination and found that the stump of the cervix had become reinverted, and that, except for the sutures which projected from the os, no one would have thought any operation had been performed. Her convalescence was most tedious, the diarrhœa frequently returning; but she was removed to her own home on September 11th, or less than a month after the operation, and from that time improved steadily. The sutures did not come away till October 15th, or two months after the operation.

In looking back on this case, almost the first question that presents itself is, "At what time did the complete inversion take place?" There can, I think, be little doubt that the woman had had the tumour for considerably more than fourteen years. How then can we account for the immunity from symptoms which she has enjoyed since the last attack of menorrhagia, six years ago? When Dr. Ryan first saw the case he thought the tumour had somewhat the shape of the interior of the uterus, but it lost this after it had been some time prolapsed. This would incline us to suppose that the tumour had been quite lately expelled from the uterus. I am more disposed to think the whole process took place quite gradually, and that the last attack of menorrhagia, six years ago, was contemporaneous with the extrusion of the tumour from the uterus. Dr. M'Clintock gives a case, in his work on "Diseases of Women" (p. 97), which in some respects closely resembles this one, but differs from it chiefly in the fact that at the time of the accident his patient had passed the change of life sixteen years previously.

The next question is as to the propriety of amputating the organ in this case at all. I think, if I met a similar case now, I would not amputate so soon after having removed the tumour that caused the inversion. For I find that so great an authority as Schroeder says that such cases of inversion very generally become spontaneously reinverted within a few days after the tumour has been removed (Schroeder's "Diseases of Women," p. 208). Why this should take place so often in such cases, and so rarely in cases that follow labour, does not appear very clear. In the present case, however, there was, I think, considerable danger of gangrene of the uterus or septicæmia if the operation had not been performed.

The point of most interest in the operation itself is, I think, the use of the suture to restrain and prevent hæmorrhage, both after the removal of the tumour and after the amputation of the uterus.

That uncontrollable hæmorrhage should follow the removal of a tumour from an inverted uterus is not strange, if we think of the congestion of

the whole organ consequent on its displacement, and also, as in this case, the congestion caused by the constriction of the cervix. Indeed, in Dr. M'Clintock's case, already alluded to, the hæmorrhage after the removal of the tumour could only be restrained by keeping up constant digital pressure for some hours, though the bleeding surface was not larger than the tip of the finger. Of course hæmorrhage, either primary or secondary, is one of the great sources of danger after the operation. Both are equally impossible if the sutures are introduced, and they also tend, I think, to lessen the danger of peritonitis—firstly, by preventing any secondary hæmorrhage into the peritoneum; and, secondly, by bringing the two peritoneal surfaces together, and leading to immediate union, such as we see in some cases of operation for ovarian tumour, even a few hours after the surfaces have been brought into apposition. To Marion Sims belongs the credit of having first used them as a means of stopping hæmorrhage after amputation of the uterus. They are now used extensively in Germany to prevent hæmorrhage after amputation of the cervix. The only objection I can see to their use in every case of amputation of the uterus is the difficulty there often is in fixing or bringing into view the stump of the cervix that is left behind. In the present case the uterus was so long that even when I had removed as much as I thought necessary, the end of the stump was still about an inch outside the vulva, and showed no inclination to retract. In a case, however, where the fundus projected only a short distance through the os, we should, I think, draw it well down and pass a strong ligature through the cervix above the point at which we purpose amputating. By this means we can always command the stump after the operation. Hence I think the immediate removal of the uterus by the ecraseur, followed by the suture, will prove to be safer and more agreeable both to patient and operator than the method adopted by Dr. M'Clintock—viz., applying a ligature for forty-eight or seventy-two hours, and then using the ecraseur. This latter is the method adopted and strongly recommended by Schroeder as being the least dangerous way of removing the organ, but he recommends the ligature to be left *in situ* for from ten to fourteen days. That reposition is possible by taxis in cases of many years' standing is proved by the success that has attended the efforts of Tyler, Smith, Professor White, and many others; and for an instance of what a patient can bear and still survive, I beg to refer you to a case which Thomas gives in his book on the "Diseases of Women" (4th ed., p. 440). This patient underwent taxis at the hands of Prof. Henry Miller, of Louisville, five times, for an hour and a half each time, the inflated vaginal air-pessary being used in the interval. She then came under the care of Professor Parvin, who used taxis on five occasions for the space of from four to six hours, and also the vaginal air-pessary in the intervals. Finally, the patient came under the care of Dr. Thomas, who on three occasions

used taxis for an hour each time. On the fourth occasion he incised the cervix, which was followed by most violent hæmorrhage, which was with difficulty controlled. On the fifth occasion he made an incision above the pubis, opened the peritoneum, and endeavoured to overcome the constriction of the cervix by dilating it with one hand from above with an instrument made for the purpose, while taxis was made with the other hand in the vagina. During these efforts at reposition the vessel cut previously began to bleed violently, and in making a final effort, in which he succeeded in reducing the organ, he passed one of his fingers through the roof of the vagina between the uterus and bladder. The patient afterwards nearly died of hæmorrhage, but finally recovered. There are few here, I think, who, after two or three efforts at reposition had failed, would not prefer to expose their patients to the risk of amputation rather than to such treatment as this.

In this case I had another opportunity of proving the usefulness and efficacy of the subcutaneous injection of ether, on which subject I had the honour of reading a paper before this Society some time ago.

Dr. Ryan has since informed me of the interesting though by no means exceptional fact that the woman has menstruated twice since the operation; and Dr. Hartigan has noticed a marked increase in the quantity of hair on her face, though whether this is due to the operation or not I cannot pretend to say.

In *The Edinburgh Medical Journal* for the month of March, there is a most interesting paper by Dr. Mathew Duncan on "Inversion of the Uterus." In one case where he failed to replace the organ, he removed it with the bistoury, having first pierced the cervix with a needle, such as is used for ligaturing hæmorrhoids, armed with strong twine, and ligaturing each half of the cervix separately, the cord being drawn as tight as possible. After the fundus was removed, however, several vessels bled freely, which shows, I think, that, as in my case, after the removal of the fundus the cervix became smaller from the escape of the contained blood, and the ligature therefore of no use. This opinion is further supported by the *post mortem*, at which it was found that there was no attempt at union of the two peritoneal surfaces, though the patient had survived the operation for more than a week.

Before concluding I would wish to draw attention to a new method of removing the inverted uterus by means of the elastic ligature. This plan originated with M. Courty, who gives the particulars of a successful case removed by him in this way in the *Annales de Gynécologie* for September, 1876, a *résumé* of which may be found in *The Obstetric Journal* for March, 1877.

A case is related by Dr. Dibardier, in the January number of the *Annales de Gynécologie*, in which the cure of an inversion of the uterus, probably of thirteen years' standing, was effected by the woman, who was

a widow, getting married a second time and again becoming pregnant. If this case is not founded on imperfect observation or imperfect diagnosis, I am inclined to look upon it as one of the most interesting that has ever been recorded.

The Chairman.—We are deeply indebted to Dr. Macan for communicating to us the history of the successful result of a case of one of the boldest operations of modern surgery. Inversion of the uterus is so rarely met with in practice, that comparatively few have much experience of it. Dr. M'Clintock has related some cases of the kind. I have myself seen only two cases of inversion of the uterus. In one of these I succeeded in reducing the organ. In the other, in which I was very recently brought down to the country, I did not succeed. For his plan of passing the sutures, Dr. Macan deserves great credit. Dr. Marion Sims nearly lost his first patient in a case of this kind.

Dr. Kidd.—I have seen five cases of complete inversion of the uterus. The first of these I was allowed to see by Dr. M'Clintock, who has put it on record. In that case the uterus was inverted, and amputation was performed by him. I saw another case with Dr. M'Clintock in which inversion followed labour, and there was no tumour; and he amputated the uterus, and the patient made a very good recovery. The next case was that of a woman who came into the Coombe Hospital, under my care, with a completely inverted uterus. I think it had been inverted for fourteen years. She had had a great deal of hæmorrhage and mucous discharge, by which she was greatly exhausted. I attempted to reduce the uterus, beginning by making pressure on the fundus, but failed completely. She suffered very much, indeed, from the attempt, and left the hospital no better than she had entered it. The next was a case, also in the Coombe Hospital, of complete inversion of the uterus following labour. It was of six months' duration, and I have already brought the case before the Society. I placed the woman under chloroform, introduced my hand into the vagina, and instead of making pressure on the fundus, as I did on the former occasion, began the reduction by pressing up the portion next to the os. I pressed it gradually up, and in seven or eight minutes succeeded in reducing it to its normal position, and followed it up with my finger; and the woman made a perfect recovery. The next case was one which I was indebted to Dr. Mapother and Dr. O'Leary for allowing me to see in St. Vincent's Hospital. It was a completely inverted uterus, with a very large fibrous polypus growing from the fundus. Dr. Roe removed the tumour, and can tell something about it; and I believe the uterus went up of itself after the tumour was removed. I am not quite satisfied as to the accuracy of Dr. Macan's remark that inversions of the uterus have become less frequent since the adoption of

the plan of pressing out the placenta, than they were when the placenta used to be drawn out by the cord. It seems a reasonable supposition that the uterus may be inverted by dragging at the cord; but I think Dr. George Johnston records a case in which the uterus became inverted by irregular contraction of the fibres, without any traction having been made upon the cord. It is, of course, possible for the uterus to be dragged down by drawing the cord; but I am inclined to think that, in the majority of instances, the cord would give way before the uterus would be drawn through, if there were not some irregularity in the uterus itself to favour the inversion.

Dr. Roe.—After I amputated the tumour the woman left the hospital; she would not submit to anything more, as there was very severe hæmorrhage during the operation. We did not then think it prudent to attempt to replace the uterus. Afterwards I lost sight of her altogether. The shape of the tumour was pyriform, and the whole mass had an hour-glass appearance. She was a woman of very weak and broken-down constitution, and appeared very weak after the operation.

Dr. Denham.—I do not agree with Dr. Macan that pressure on the fundus is a very common cause of inversion. The occurrence is very rare; whereas if pressure on traction induced inversion we should have it frequently. In the case alluded to by Dr. Kidd, as having occurred under Dr. Johnston, I believe an extremely small amount of pressure was used. The case which Dr. M'Clintock has so ably recorded, and of which he has given a very beautiful drawing, occurred during the first year of my mastership. The fibroid tumour that was supposed to have dragged down or produced inversion of the uterus, was externally not much larger than two walnuts put together. There was a very severe outbreak of puerperal fever in the hospital at the time, and, my health giving way, I was obliged to leave town. Before going I removed the fibroid tumour alluded to. The woman was an elderly person, probably sixty years of age. Dr. M'Clintock, whom I left in charge of the hospital, afterwards removed the entire body of the uterus. If you look at the plate you will see the tumour was exceedingly small, and in my mind not sufficient to cause inversion of the uterus, which, I think, must have been spontaneous. The operation was successful, and, if I remember right, the tumour was removed by the application of a ligature first, and, after it had been on for some time, the knife was applied. I had another case of recent inversion, in which a midwife, anxious to anticipate the labours of a physician in a labour case, made a very powerful traction of the cord, and, in doing so, suddenly pulled down the placenta and inverted the uterus. She then hurried away the placenta and pushed back the uterus. There was severe hæmorrhage for several days, and then

the poor woman was sent to hospital. We easily diagnosed the nature of the case, and then, after a day or two of rest, and endeavouring to resuscitate the poor woman's strength, which had been greatly exhausted, we put her under chloroform, and with considerable difficulty and necessarily slow manipulation were able to get up almost the entire body of the uterus, reinverting it. Strange to say, a small portion of it would not yield to any force that we thought safe—in fact, I was afraid that if I continued to press up I should pass my thumb through the substance of the uterus. We left it for the night; and by the following morning Nature seemed to have accomplished all that we had left undone, for the uterus had passed up like an Indiarubber ball, and everything had become right. She conceived again, and died of puerperal fever. You will find in the Museum of the Rotunda a case of Dr. Johnston's, of which there are notes in the hospital.

Dr. Churchill.—I saw a case in which there was no traction of the cord and no pressure upon the uterus. The nurse was trying to hold the fundus of the uterus; but the bed was very high, and the nurse being very fat and short, could not give pressure, and the uterus came inside out with the placenta attached. I stripped it off, and with a great deal of trouble got the uterus back, as I believe, perfectly. There was no hæmorrhage, and she went on very well for a week, until something made me make a further examination, and I found the uterus inside out again. On the following day my father succeeded in returning it with a great deal of difficulty. The woman has had a child since, and is perfectly well.

The Chairman.—In one of the cases of inversion that I saw, in consultation with Dr. Torney, the midwife denied having made any traction on the cord or pressure over the fundus. The second case that I saw was attended by a very eminent physician in the country, who was quite competent to undertake any case of labour, and who could not possibly have made the mistake of pressing unduly on the fundus or making any undue traction of the cord. He said that after the woman was bound up and was perfectly well, the uterus inverted itself. It has been found beyond the possibility of doubt that in a number of cases the uterus has inverted itself spontaneously; and, no doubt, it was so in this gentleman's case.

Dr. Macan, in reply, would wish to correct an error into which some of the members of the Society had fallen. He did not say that traction on the cord was the only cause of inversion. Drs. Johnston and Sinclair had reported a case in which pressure on the fundus had led to the accident. So far was he from denying that inversion might occur spontaneously, that

he had given three classes of spontaneous inversion. The greatest difficulty in reduction was often experienced, as in the case mentioned by Dr. Denham, when the fundus had been so far displaced as to be nearly on a level with the external os. In such cases Dr. Emmet, of New York, has proposed and practised the plan of passing silver wire sutures through the lips of the os, and, drawing them together over the fundus, was to exert a constant upward pressure on that portion of the organ. He had brought the case before the Society chiefly to get the opinion of some of the older members as to the propriety of using the sutures in every case of amputation of the uterus—both to restrain hæmorrhage after the removal of the tumour, if there be one, and also after the removal of the uterus; and also whether, in their opinion, such a practice, by bringing the two peritoneal surfaces into contact, would tend to lessen the danger of general peritonitis following the operation.

Cases of Polypus Uteri. By Fleetwood Churchill, M.D., M.R.I.A., Ex-President of the King and Queen's College of Physicians, and of the Obstetrical Society, &c.

At the request of the Hon. Secretary of the Obstetrical Society, I have put together three cases of fibroid polypus of the uterus, more from the interest I feel in the Society, and in acknowledgment of the claims it has upon its members, than because of their intrinsic value. I think, however, they are of some interest—first in being specimens of very large polypi; and, secondly, in these days of ingenious and complicated instruments, as illustrations of the value of simpler agencies.

Case I.—Miss W., a large, healthy woman, of about forty, of active habits; had latterly been troubled with uterine discharges, red and white, and complained much of a sense of fulness and weight in the pelvis. On making an examination, I found the vagina distended to the utmost, and quite filled by one of the largest polypi I have ever met, whose neck I could barely touch with the point of my finger. So far as I could ascertain, it grew from the cervix, and I proposed to remove it by ligature. This was some thirty years ago, before the ecraseur had been applied to the removal of these growths. I had the advantage of Dr. M'Clintock's assistance, and passed a ligature secured by Gooch's canula, but with some misgiving that, owing to the small orifice and limited space in the pelvis, I had only encircled a portion of the polypus, and had not succeeded in reaching the neck. In a day or two, when I endeavoured to tighten the ligature, I found my misgivings were only too true, for the ligature slipped off. I therefore determined to remove it by the scissors, and having provided myself with a strong and long pair, with a vulsellum and the necessaries for plugging the vagina afterwards, I introduced the scissors, guided by my forefinger, up to the

pedicle, the tumour having been fixed and drawn down as far as possible by the vulsellum; then, changing hands, when necessary, to guard the vagina and cervix, I proceeded gradually to snip through the stalk, which was accomplished in a little time. But the difficulty was by no means over. It is true that I had separated the tumour, but it was so large and firm, and the vaginal orifice so small, that its extraction required as much force as I ever had to employ in extracting the fœtal head with the forceps. After this I plugged the vagina fully with French wadding, which I removed in twenty-four hours, and as there was no bleeding I did not plug again. Notwithstanding an attack of phlegmasia dolens about a week afterwards, the lady made a good recovery, and was alive a few years ago.

Case II.—The second case also occurred in a maiden lady, about thirty. I may remark how very much the difficulty of these operations is increased by the smallness of the orifice through which you have to act. This lady had suffered very much from hæmorrhage for a year or two, and was reduced in strength and blanched. I had to divide the hymen before I could pass in my finger, and then I found a very large polypus growing from the cervix and filling the vagina. Having secured the valuable assistance of Dr. M'Clintock, I determined to remove it by the ecraseur; but, after a patient trial by Dr. M'Clintock and myself, we found it impossible to pass the wire or chain round the pedicle. Having foreseen the possibility of such a result, I had provided myself with the long scissors, and having fixed the tumour with a vulsellum, I had comparatively little difficulty in snipping across the neck and freeing the tumour, but more in extracting the polypus, after which the vagina was well plugged. On removing the plug, as there was no bleeding, it was not replaced. The lady recovered perfectly.

Now, without wishing for a moment to undervalue the ecraseur, which I have often used with much satisfaction, I should like to impress on the members that, should it be found too difficult of introduction, we have a much simpler and easy method of operating with the scissors. But they must be long and strong, and one ought to be able to use them with either hand. It is necessary to be provided with a vulsellum or the corkscrew-like instrument invented by Dr. M'Clintock, so as to draw down and fix the tumour. The great fear, of course, in cutting across the stalk of the polypus, is hæmorrhage. I think it rarely occurs to a great extent with large polypi, but at any rate we ought to be prepared, and as we can plug the vagina with cotton wool or French wadding through a speculum, without pain, and so tightly as to restrain all hæmorrhage, we should not attempt this operation without these appliances. I have found it useful to dip the inner end of the plug in a strong tincture or solution of perchloride of iron. The plug should

remain for twenty-four hours, and if there be hæmorrhage it should be repeated until that cease, after which the vagina should be well syringed once or twice a day.

Case III.—I am tempted to add a third case, in which the removal of the polypus was attained by even simpler means. Some ten or twelve years ago I was summoned to see a lady from whom "something had fallen down;" it was found that the uterus was inverted. I found the lady in bed, and protruding from the vaginal orifice was a tumour certainly five inches long and about three in circumference. It was not the uterus, undoubtedly; it seemed, and I believe was, a fibroid tumour of very lax structure, as though the fibres had been separated from each other. When trying to make out its origin from the cervix uteri, I found that the structure yielded quite easily to my finger; without hæmorrhage, and by a little manipulation, I separated the whole from the cervix, whence it originated, and removed it from the vagina. There was not a drop of blood escaped, and I contented myself with advising astringent injections. The lady recovered well.

I ought to apologise for this meagre production. It is of little value, unless to show to the Society the good will I shall bear to it to the end of my life.

The Chairman.—I am sure it is gratifying to every member of the Society to hear any communication from one so justly esteemed and respected as Dr. Churchill is, and whose absence from amongst us we must all lament. This paper shows that in his retirement he has lost none of his vigour and ability, and I trust that it may be an earnest of many similar communications addressed by him to us of a younger generation, who will be glad to learn by his experience.

Dr. Atthill.—I have not the slightest doubt that where a tumour is sufficiently low for you to reach the pedicle with a scissors, you can remove it more satisfactorily with them than by any other means. On more than one occasion, when the tumour had a broad, thick pedicle, I have broken two or three wires in trying to remove it, and was finally only able to do so with the aid of a pair of scissors. At the same time the use of the scissors is liable to be followed by hæmorrhage.

Dr. Macan.—Dr. Heywood Smith has invented a scissors especially for this purpose, which can be applied at any desired angle so as to remove the tumour more easily.

Dr. Kidd read the following communication from Dr. Russell, of Lurgan, *On the Treatment of Puerperal Convulsions* :—

"A healthy young woman, twenty years of age, a primipara, within a few days of her full time, was seized with convulsions, which recurred about every quarter of an hour, and were of a very severe character. The urine was albuminous. I gave her by enema ʒss. of chloral, followed by a lengthening of the interval between the fits to about two hours. After the next fit she got another enema of the same strength, and the fits did not recur for upwards of four hours. A third enema was given, followed by sound sleep for eight hours. No more fits recurred, and next day she was confined of a dead child, and did well. I send this case for the purpose of eliciting a discussion on a treatment which has been recommended some years ago as more successful than the administration of chloroform by inhalation, and as far superior to the old practice of emptying the womb—bleeding and purgation, &c. In Dr. Churchill's book, he adduces statistics to show that the ordinary mortality by the old treatment is about 1 in 4, whereas he adduces one instance in the practice of Dr. Brown, who used chloroform in 16 cases, and all recovered. I shall be glad to see in The Dublin Journal of Medical Science the report of a discussion on this subject."

Dr. Kidd added.—I do not know that any question arises to the obstetric practitioner attended with more difficulty and causing more anxiety than the treatment of puerperal convulsions. I certainly think that if we start with a fixed rule, and apply that rule to all the cases that we meet with, we shall find it an unsuccessful mode of practice. Formerly the practice pretty generally adopted was bleeding and the use of tartar emetic, with minute doses of opium, and purgation. Then the bleeding was given up and tartar emetic was relied on by itself. Then various forms of anæsthetics came into use; of course the question of the propriety of emptying the uterus has also to be considered. There is a class of convulsions in which anæsthetics are specially and peculiarly useful, and are the very best line of treatment that can be adopted. Where the convulsions occur before or during labour, and the patient recovers consciousness perfectly after each attack of convulsions, and the labour is not so far advanced that you can complete it by means of the forceps, or any other operation of the kind, then, I believe, that anæsthetics are very valuable indeed—such as chloral, subcutaneous injections of morphia, or the use of chloroform. I have, under those circumstances, cut short convulsions by subcutaneous injections of morphia, which sometimes answered exceedingly well. I am equally sure that I have seen chloral answer very well. The method suggested by Dr. Russell, of giving chloral by enema, is, I think, a very good one.

In other cases I am sure that chloroform has been very useful. Where the patient is comatose, with the fits occurring at short intervals, and the patient not recovering consciousness between the fits, you will not be right in resorting to anæsthetics, and the best plan in such cases is, first, hard purging, and, next, emptying the uterus. I think it was Abercrombie who used the phrase "hard purging" in cases of head affections; and I am sure that in many cases of convulsions I have seen great benefit ensue from hard purging. The practice commonly adopted in the Coombe Hospital is to give a large dose of calomel—from 10 to 20 grains—moistened and mixed with a little sugar, and with it three or four drops of croton oil, and to follow that up with a large dose of castor oil and turpentine. This, in a few hours, induces free purging, and benefits the patient very decidedly. Do not imagine that 20 grains of calomel will act very rapidly. I have seen cases in which it was necessary to repeat it. Whether it is that the nervous system is so oppressed that the medicines do not act, or not, I cannot undertake to say; but, the fact is, that purgatives often act very slowly. I may be allowed to warn some of the younger members of the Society as to another effect we sometimes see from a low state of the nervous system. It is a common practice, under such circumstances, to put mustard blisters to the calves of the legs. But all of us have seen, more frequently than we wish, the very injurious effects that result from putting mustard blisters to the calves of the legs for any length of time while the patient is in such a state. Not many weeks ago I saw a lady, in the neighbourhood of Dublin, with deep sloughs on each of her legs from mustard blisters, which had been left on them while she was in that comatose condition from puerperal convulsions. My practice, under those circumstances is, first, hard purging, and, next, emptying the uterus. In some cases, where the os is very small, I dilated it with Barnes's bags, and succeeded in getting it rapidly emptied. I saw one case, some time ago, in which the patient was exactly in that condition. She had had more than thirty fits of convulsions, and had been comatose for a considerable time. The os was not larger than the tips of my finger; she had been bled, she had been shaved, cupped, and leeched, but still the fits were going on. We gave her a large dose of calomel, and I emptied the uterus as quickly as I could, and she never had a fit after the uterus had been emptied, and recovered without any bad symptom. But where you have convulsions setting in after labour, and where there is not much coma, I believe that anæsthetics are peculiarly useful. Whether the anodyne be an opiate or a subcutaneous injection of morphia, I believe that that line of treatment is most useful. On the whole, if I were to sum up my practice, I think that, in certain rare cases, where you have a hot face, throbbing carotids and bounding pulse, you may bleed with advantage; but, the cases in which bleeding can be practised with

advantage are very few indeed. If you have consciousness perfectly restored, anæsthetics are useful. If there be complete stupor and the fits are going on, avoid anæsthetics and try hard purging and emptying of the uterus. In convulsions occurring after delivery, anæsthetics are peculiarly useful, especially chloral.

The CHAIRMAN.—I think it very desirable that we should give our opinions fully and freely, and not fall too much into the habit of saying that every paper which is read here is one of the most valuable essays that ever we listened to. My idea with respect to the communication we have just heard is, that there is nothing whatever new in it. It records a case of puerperal convulsions treated with injections of chloral, by the rectum, every eight hours. The writer does not say whether the convulsions were hysterical, epileptic, or apoplectic. My opinion is that, where the convulsions are either epileptiform or apoplectic, if we were to depend merely upon an injection of even 30 grains of chloral repeated every eighth hour, we would be trifling with the life of the woman and child. In a case of hysterical convulsions it matters comparatively little what treatment we adopt. But where we have to deal with one of the greatest complications of labour we must adopt grave measures. In these cases of convulsions—putting the hysterical form of them out of the question—the remedy on which I would rely is free bleeding, and this without at all undervaluing other treatment. It is the fashion at the present day to decry bleeding; but I believe that, whether the convulsions be epileptiform or apoplectic, if the woman can bear the loss of blood, you will find that her pulse will come up under bleeding, and that the more freely you bleed her the better. I have taken many ounces of blood from a full plethoric woman with advantage under such circumstances. I do not say that so much should be taken in every case, but I believe that 10 or 20 ounces may generally be taken with great advantage.

DR. ATTHILL.—Dr. Kidd has laid down a very excellent axiom—namely, that we should not bind ourselves to any particular form of treatment in cases of convulsions. I cannot myself say that I would rely much upon bleeding. No doubt, in a certain proportion of cases which occur, bleeding is not only justifiable but advisable; but such cases are, in my opinion, few and far between. Cases of apoplectic convulsions are not very numerous; and, when they do occur, convulsions are generally the cause of the apoplexy rather than the result. In the treatment of puerperal convulsions there is a twofold object to be kept in view—namely, to lessen the violence of the seizure at the time, and to prevent its recurrence. No known remedy so rapidly and effectually checks the attacks and retards the recurrence of convulsions as chloroform. I do

not object to chloral, but it takes a much larger time to produce its effects—certainly twenty minutes or half an hour—whereas chloroform acts in a few minutes. Chloroform and chloral are not incompatible; and in a large proportion of cases I would treat the patient by the use of both these remedies. I would sit by and administer chloroform. If I saw convulsions coming on I would give chloral freely in the interval. If you give chloral at all it should be given in large doses—say, of from 40 to 50 grains—if possible by the mouth of the patient, and if not by the rectum. Chloroform and chloral may be given simultaneously with great advantage. Then the exciting cause of the convulsions should be removed—and that is, in the majority of cases the presence of the fœtus in the uterus, and if you get rid of it you will have no more convulsions. Where you have a flushed face, purgative treatment is desirable, and in a few cases bleeding. I shall never forget a case in which we used conjointly chloroform and bleeding. The patient was a strong plethoric girl, who was brought to the hospital insensible. The os was not larger than the size of a sixpence and rigid. We bled her, but the convulsions did not cease; we purged her freely, but they did not cease. Then she was put under chloroform, and kept under its influence for eight hours. During those eight hours she never had convulsions; the moment the slighest twitching was observed chloroform was administered freely, and the attack was arrested. Within fifteen minntes, on our ceasing to give chloroform, the convulsions returned. It was only after we had succeeded in delivering her with the forceps that the convulsions ceased. This patient recovered. To sum up, I would give chloroform in preference to any other remedy. I do not object to chloral, but I do not like to rely upon it alone. I would empty the uterus if I could, and I would resort to purging in some cases, and to bleeding in a few rare ones.

Dr. Denham.—In the treatment of puerperal convulsions we must keep in view the great variety of cases that arise, and not base our mode of treatment for all cases upon the facts of any single case. In order to treat puerperal convulsions with advantage, we must look to the primary cause of them. Sometimes it is a purely nervous affection; sometimes it arises from constipation and a lodgment in the bowels. I have not the slightest doubt that bleeding in many cases is highly advantageous. I remember a case, while I was an assistant in the Rotunda Hospital, in which a young woman was attacked with convulsions and died on being delivered. On a *post mortem* examination we found that a blood-vessel had ruptured in the brain, and that both the lateral ventricles were largely filled with clots. If that woman had been bled early in the convulsions her life would have been saved. I fully appreciate the advantages of purgatives, but we must not lose sight of the fact that in order to avail ourselves of them we have to wait for

some hours. Therefore when we have the lancet in our fingers and are able to use it we ought to do so as a primary means of treatment. I have heard a great deal about emptying the uterus, but what are we to do in a case where convulsions set in before labour comes on at all, and where the woman may be only seven months pregnant? We should be very careful about speaking of the advantage of an operation which in some cases may be impossible. In other cases convulsions come on after the woman has been delivered. Some time ago I was called on by Dr. Forrest to see a patient of his. It appeared that the woman's labour came on suddenly, and the midwife, either wishing to have the honour and glory to herself, or not wishing to disturb Dr. Forrest, completed the delivery without assistance. In two hours afterwards the woman was seized with terrific convulsions. We bled her, and the operation was attended with great advantage. I have great faith in purging also, but still I maintain that each case should be treated on its own merits. In the case of a full plethoric young woman, who was either in the commencement of her labour or not in labour at all, I should not have the slightest hesitation in recommending the free use of the lancet, followed by Dr. Kidd's admirable treatment of a large dose of calomel and three or four drops of croton oil. On the other hand I have sometimes seen the best effects to result from anæsthetics—whether chloroform or chloral. I recommend the use of the latter by the rectum.

The Society then adjourned.

THE NATURE AND TREATMENT OF DIPHTHERIA.

In a concise paper on "Diphtheria," Dr. David Prince (*The St. Louis Medical Journal*, Dec. 18, 1875) adopts the view that the disease commences as a local affection, and recommends iodine inhalations as the best agent for arresting the progress of the disease. He says:—"Recognising the importance of warmth and moisture to prevent the drying of the exudations, especially if in the larynx, and the favouring influence of warmth and moisture in inducing such a suppuration as may early detach the crusts, the suggestion has occurred to me to make some operations upon the effects of a weak solution of iodine flown off in a spray, or nebulisation by the steam atomiser. A solution not stronger than one-fourth of a grain of iodine to the same of water, holding in solution four grains of iodide of potassium, can be inspired for a long time with impunity." The author further points out that this preparation does not irritate the air-passages, and can be used constantly, whereas other preparations cannot be used in such quantity or with sufficient frequency—owing to their irritant properties—to produce favourable results.

T. W. G.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

President—Thomas Hayden, F.K.Q.C.P.

Secretary—E. H. Bennett, M.D.

Pericarditis, with Fatty Degeneration of the Heart.—Dr. H. Kennedy exhibited a specimen of heart-disease, to the clinical history of which he wished particularly to call the attention of the Society. He said:—A man of strong frame, and twenty-six years of age, was admitted to the Whitworth Hospital, Drumcondra, in a state of great dyspnœa. He was rather corpulent, and stated he had lived chiefly on porter. On a close examination after his admission I could lay my finger on only two physical signs. He referred all his distress to the left lobe of the liver, and pressure here caused him severe pain. It was clear that there was congestion of the organ. Secondly, percussion over the posterior surface of the thorax showed that on the left side the sound was distinctly duller than on the right. What this dulness arose from was not easy to determine; for all that the stethoscope disclosed was what might be called an exaggerated breathing, almost puerile, and this existed both over the back and front of the thorax. Over the cardiac region I could not detect any morbid sound. It was evident that the lung intervened between the heart and the stethoscope. After seeing the patient two or three times, and having investigated the case as closely as I could, I was forced, by what the French call "*exclusion*," to arrive at the conclusion that the heart was in some way or other involved. The pulse, I should have said, was rapid, and during a part of the man's illness hard to catch at the wrist. Subsequently it became more developed, and not as rapid as at first. As I said before, no morbid sound could be heard over the region of the heart; neither did pressure here give any pain. I notice these points particularly, because other experience led me to think pericarditis might be present, and account for all the symptoms; it was, however, but a conjecture. Still, as the case went on, I got a stronger and stronger conviction that the mischief lay in or about the heart, and, acting under this idea, the treatment consisted in stimulants, calomel, and blisters. But though for two days these seemed to afford some relief, still the dyspnœa again increased, and the patient died, after being one week in hospital. The entire illness occupied about a fortnight. The *post mortem* examination was performed by Mr. Hall, the resident clinical clerk, but it was done under much difficulty, and at night. The liver was considerably enlarged and very fatty—this latter point being confirmed by Dr. Brown. The pericardium contained twelve ounces of serous fluid.

through which floated some flakes of lymph. There was adhesion, of old standing, over a portion of the right heart, and here also some recent lymph had been effused. The heart itself was becoming fatty. There was no valvular disease. This case would afford ample room for discussion, but this is not the place for such. I shall, then, make but one remark, which is, that the *post mortem* examination seems to me to account for all the difficulties which surrounded the case during life.—*December* 16, 1876.

Typhoid Fever.—Dr. Hayden said: I beg to submit to the Society two examples of disease, as illustrated by these viscera, which I think will be found to possess considerable interest, at least as regards diagnosis. One of these is a case of typhoid with the characteristic ulceration of the intestines, and the further circumstance that the temperature rose to a very high point indeed shortly before death. The other is a case of a pseudo-typhoid type—that is, of fever of non-essential origin, but so closely resembling typhoid that I fell into the error of making the diagnosis of that disease. The history of the latter case I shall first narrate. The subject was a labouring man, fifty years of age, who was admitted into the Mater Misericordiæ hospital on the 18th November last. The week previous he had been exposed to, and got saturated with, rain. He sickened and had a slight rigor, which was followed by febrile symptoms; and on his admission on the 18th of November his temperature was 103·4°. On the 28th, as reported by my resident, Mr. Redmond, he was attacked with vomiting, tenderness over the iliac region, and diarrhœa. On examining him carefully I failed to detect typhoid spots, or spots of any kind; but his body was thickly covered with freckles, which would have rendered it impossible to discover them even if they had existed. On the 28th he had another rigor, which was followed by vomiting, great tenderness in the right iliac region, and now, for the first time, extreme tenderness in the right hypochondrium. That day his temperature in the morning was 100°, and in the evening 100·4°. I wish to fix the attention of the Society specially on the symptoms at this date, because, as will be seen, they have a special significance. On the 1st of December the tenderness in the abdomen, the diarrhœa, and the vomiting continued. On the 3rd the tenderness seemed to have spread over the entire abdomen; vomiting and diarrhœa. On the 5th, tenderness and vomiting, with collapse and cold sweating. On the 6th the diarrhœa ceased, but the vomiting now became stercoraceous. On the 7th, diarrhœa and stercoraceous vomiting, the abdomen being very tender. He died at twelve o'clock, p.m., on the 9th of December. I may say here that on seeing the man, and carefully examining him, I came to the conclusion that it was an example of typhoid fever. My colleague, Dr. Nixon, who saw him in my absence and before I visited him, came to the same conclusion. The temperature chart closely simulating that

of a case of typhoid, ranging from 100° and 103·4°—the latter being the registration on the day of his admission—to 96·6°, which was the temperature at the date of collapse on the 5th. The average diurnal range was between 101° and 103°—that is, about two degrees of difference between morning and evening temperature. There seemed to be no deviation at all from the ordinary course of the temperature curve in cases of typhoid fever. This and the localised abdominal tenderness, together with the character of his tongue, and, in fact, all the symptoms, led to the conclusion that the case was one of typhoid. On examining the body, I was very much astonished to find an old hepatic abscess. This abscess was confined to the lower edge and outer border of the right lobe of the liver. It scarcely at all engaged the structure of the organ, and, in fact, seemed to have been formed upon its surface. This abscess manifestly had given way, and burst into the peritoneum, causing peritonitis, the symptoms of which were first exhibited on the 28th of November, when, in addition to the iliac tenderness, there was considerable tenderness at the right hypochondrium. Regarding the case as one of perforation of the bowel, I had been greatly puzzled to understand why the tenderness should have been so strictly localised, but this was now fully explained. There had been adhesions previously contracted with the surrounding viscera, and the pus formed had become strictly localised. The absence of jaundice in a case of hepatic abscess, which proved fatal, was explained by the circumstance that the bulk of the organ was not affected by the disease. How the abscess originated I do not pretend to explain. I now exhibit the intestine for the purpose of showing that there had not been disease of the intestinal glands. The posterior surface of the right lobe of the liver had become firmly attached to the hepatic angle of the colon, and this attachment seemed to have limited the effusion for some time. This portion of the intestine was most carefully examined, and its mucous surface exhibits neither vascularity nor glandular disease. I shall now briefly call attention to the other case, which was one of veritable typhoid. The subject was a woman, aged twenty-five years, who had been admitted into the hospital on the 5th day of this month (December). Previous to her illness she had been a healthy young woman. For a fortnight previous to her admission she had been suffering from anomalous symptoms, including delirium. She was a domestic servant, and it appeared that she had been discharging her duties in that capacity while she was suffering from typhoid fever. When admitted to the hospital she was delirious, and her temperature was 100° F. She had the characteristic typhoid eruption and diarrhœa. On the 9th of December—that is, the 5th day after her admission, she had copious intestinal hæmorrhage. She was still delirious. On the third day after the hæmorrhage—namely, the 11th of this month, her temperature, which in the morning was 103·2°, ran up in the evening to

106·6°. She died in the course of that night. The spleen is, as you observe, enlarged considerably. The portion of the intestine which I hold in my hand exhibits lesions of the glands not at all in proportion to the exaggerated character of the constitutional disturbance. There is a patch of ulceration, not at all very decided, but sufficiently characteristic, and surrounded by a zone of vascularity. There are two or three such patches, but comparatively small. In another situation the bowel has been very nearly perforated. In the upper portion of the intestine scarcely anything of this sort is to be found. The former case is interesting as mimicking typhoid fever. It simulated that disease, first in its history, secondly in localised abdominal tenderness, and thirdly in the temperature curve, and the existence of diarrhœa. Yet it was not typhoid, but a disease which had not been detected, the symptoms of perforation being due to the rupture of the abscess in the liver, and that abscess being peculiar in being confined to the edge of the organ, and not, therefore, giving rise to the ordinary symptoms of hepatic disease. The second case is interesting as showing the rapid rise of temperature to so high a point as 106°, the occurrence of death immediately afterwards, and the marked disproportion between the severity of the constitutional disturbance and the organic lesions found after death.—*December* 16, 1876.

Fracture of the Spine.—Mr. Croly said: This is a specimen of fracture of the seventh cervical vertebra. I shall read a history of the case taken by my friend, Mr. Crozier. The patient was a strong, well-built man, about fifty-six years of age, and was brought to the City of Dublin Hospital on the 9th of December (Saturday last), in consequence of having fallen on his face the night before by the tripping of his foot as he walked across the room. He was not intoxicated at the time. On his admission the most prominent of his symptoms was pain in the nape of the neck, increased on pressure. A nodding motion of his head also increased the pain, and he desired his head to be supported. There was slight œdema of the left forearm, and he suffered intense thirst. He was perfectly rational, and answered questions coherently. There was complete retention of urine—45 ounces were drawn off. The operation caused priapism; effusion into the bronchi was the next result, and he died on Sunday morning, the accident having occurred on that day fortnight. At a *post mortem* examination we took out the spinal column and the spinal cord itself. The laminæ of the spinous processes were removed; the broken bone of the seventh vertebra is easily felt. The fracture runs through the body of the bone, and there is a separation of the articulating processes, and a kind of mixed fracture and dislocation of the seventh spinous process; the fracture runs very evenly across. There was a good deal of blood effused into the surrounding tissues and

the nape of the neck. The laminæ of the spinous processes having been removed, we looked for the torn spinal cord. Partly corresponding to the fracture, there was an indentation of the cord, though it was not separated. What appears to have occurred was this:—The man fell on his head as he was going across the room; his neck was suddenly wrenched, and the cord was nipped between the fractured portions. The amount of injury so inflicted was the cause of death. You observe, looking at one point of the posterior surface of the cord, there is a decided narrowing, as if a thread had been partly tied round it. Between the membranes on the anterior surface of the cord and the cord itself, a very considerable amount of blood was effused; and also corresponding with the anterior surface of the spine you see the discoloured appearance of the vertebræ. There was a quantity of blood effused there. A question of very great practical interest is, whether this would have been a case for operative interference. What the circumstances are under which operative interference should be resorted to in fracture of the spine, is a question not exactly decided. In this case we were opposed to operation, and you see from the nature of the fracture that taking away the laminæ and spinous processes would not have relieved the pressure on the cord, because the pressure was entirely in the front. Some surgeons believe that if the cord be not positively cut, trephining may be of use; but in the present case, although the cord was not cut, but merely indented, death took place very rapidly.—*December* 16, 1876.

Excision of Knee-joint.—Mr. Tyrrell said: Last Wednesday I excised a knee-joint in the Mater Misericordiæ Hospital, and the history of the case is as follows:—An Irishwoman, who had spent the greater part of her life in London as a maid-of-all-work, was, four years ago, attacked with pain in the right knee. She attributed it to a strain from having slipped down stairs. She became so bad that she was obliged to apply at St. George's Hospital, London, where she was admitted, and after some time she was so much improved as to be able to leave and resume her work. After some months she was again obliged to seek admission into hospital, and she was then admitted into St. Mary's, under the care of Mr. Lane. She says he advised her to have the leg removed; she was unwilling, and left. Last summer she was a second time admitted into St. George's, under the care of Mr. Henry Lee, and he also advised her to submit to amputation of the limb. However, she was unwilling to lose her leg, and, with the greatest generosity and kindness, the authorities of St. George's sent two attendants—a male and female—with her to her home in the county Kilkenny. She came under my care last December, recommended by my friend, Dr. O'Hanlon, of Castlecomer. She is a short, exceedingly fat woman, about forty years of age; single; general health good. On examination I found the right knee much larger than the

left; exquisitely painful on pressure or percussion of the heel; it started at night, and she said that when in hospital in London she got a subcutaneous injection of morphia every night. The right leg measured above the patella 17 inches; below the patella 15 inches; the corresponding measurements on the left were 15 and 13½ inches. I diagnosed ulceration of the cartilages, gelatinous thickening of the synovial membrane, and, probably, superficial disease of the bones. As she was most anxious that an attempt should be made to save her leg, I promised to do so, although I looked upon the case as not a favourable one. Last Wednesday I operated. She was so stout that Esmarch's bandage did not in the slightest degree control the hæmorrhage, but rather, by causing superficial congestion, increased it. In fact, the bandage and cord had as little effect in compressing the femoral artery as they would have of compressing my little finger if placed in the centre of a feather pillow. The specimens exhibited show the soundness of the diagnosis. The patella was denuded of cartilage; the synovial membrane was much thickened; the cartilage of the tibia had disappeared, as well as most of the cartilage of the femur. The tibia was also superficially ulcerated, as also the femur. This is not the place to speak of the operation of excision of the knee-joint as a surgical proceeding, or to contrast it with amputation, but I trust before the termination of the session I may be able to present to the Society a cast showing the success of the operation.—*January* 13, 1877.

Cirrhosis of the Liver in Early Life.—Dr. Hayden said: I wish to bring under the notice of the Society an example of cirrhosis of the liver, in childhood, associated with cirrhosis of the kidneys, adhesion of the pericardium, and calcareous deposits in the false membranes. Early last November a boy, aged fourteen, was admitted under my care, having had scarlatina some months previously. He was suffering from general dropsy which predominated in the abdomen, the ascites being quite in excess of the dropsical effusion elsewhere. He was remarkably pallid. His face was puffed; urine excessive in quantity, of medium specific gravity, and free from albumen. There was no physical evidence of cardiac disease, but the heart pulsated very feebly. In the course of the month of November it became obvious that passive effusion had taken place into the right side of the chest, and that he was being suffocated mainly by this effusion. Therefore, though adverse to tapping in such a case, I found myself under the necessity of removing the fluid. Over three quarts of clear serum were removed. The boy experienced great relief, but in a short time there was a re-accumulation of the fluid. He was again tapped (the fluid then removed being pus) to about the same quantity. I beg to observe here that, even when it was obvious, there was air in the pleural cavity in addition to the liquid, the phenomenon of

splashing was not perceptible. The boy died in the early part of last December. On examining his chest my assistant, Mr. Redmond, found the following conditions of the right lung and pleura:—The lung was compressed and dense on section; the pleura everywhere was remarkably thick; the false membrane was detached from the surface of the lung over a space about four inches in diameter; in this space the liquid had been contained, constituting an encysted hydrothorax, and subsequently an encysted empyema; the heart was rather small; the pericardium was firmly adherent to the anterior surface of the heart; and at the portion of it which covers the base of the right ventricle and of the left auricle there is a thick plate of calcareous matter. This plate had sent processes into the substance of the heart in two or three places. The chambers, the walls, and the valves of the heart are all perfectly sound; the liver was very much reduced in volume, and lobulated on the surface, and on section it was dense, and exhibited an excess of connective tissue; the kidneys were granular, and the connective tissues increased, but not to so great a degree as in the liver. Dr. Gunn, who was kind enough to examine the tissue microscopically, reports that the liver-cells were fatty, and the connective tissue greatly in excess of the normal proportion. The interest of the case mainly relates to the state of the liver. Here is the case of a boy of fourteen, who, we must conclude in the absence of proof to the contrary, had not been a tippler, and yet was the subject of cirrhosis of the liver and kidneys—pathological conditions usually attributed to alcoholism. Then the absence of splashing is an interesting feature in the case where both fluid and air were contained in the pleural cavity. The point of most interest to myself has reference to the heart. A discussion has been carried on for a long time as to the effect of adhesions of the pericardium, of long standing, on the volume of the heart—many authors holding that adhesions of the pericardium involve, of necessity, hypertrophy of the heart. I have endeavoured to show that this view is only partially correct. It would be true if the statement were only applied to young subjects in process of growth, and in whom nutrition is active; but in the case of old subjects the disease has rather the effect of atrophising the heart. In this case there was pericarditis of long standing, with adhesions, and yet the heart is atrophied. How is this to be explained? I think that the process of nutritition was *not* active in this boy; he suffered from malnutrition, due to organic disease. Hence, though subject to the irritation of false membrane on its surface, the heart failed to grow through defect of pabulum.—*January* 13, 1877.

Disease of the Aortic and Mitral Orifices.—Dr. Hayden said: I beg also to submit to the Society the case of a labourer, aged thirty, and of intemperate habits, who was admitted under my care in the latter part

of October. A brief examination of the man, who was suffering from œdema of the lower extremities, with congestion and faintness, laboured respiration, cough, and expectoration of pus, satisfied me that his heart was greatly enlarged, and that there was, moreover, disease of the aorta. At the right base there was a sharp systolic murmur traceable through the aorta and into the arteries of the neck; this was followed by a second murmur of diastolic rhythm, and metallic quality. At the upper part of the right side of the chest, in the situation of the right third intercostal space, this diastolic murmur attained its maximum intensity; and, associated with it, in this situation, was a jerking respiratory whiff, which Dr. Stokes was one of the first to call attention to, as affording evidence of aneurismal pressure on a primary or secondary bronchus. The respiratory sound was at first faint, and then became suddenly loud, as if an obstruction in the main air-passage had been suddenly overcome by the force of respiration. The loudness of the murmur, and the situation and recurrence of this respiratory phenomenon, induced me at first to suspect aneurism, but a little further observation of the case satisfied me that there was no aneurism. The poor man died of exhaustion, as commonly happens in cases of the kind. Everything failed to stimulate him; his pulse and his appetite failed; he was unable to sleep; the œdema of the lower extremities increased, and, without any notable change in his general condition except gradual failure of strength, he died on the 18th of November. His heart was considerably enlarged, as will be seen. The right ventricle seems to be a mere appendage to the left; the walls are rather thin, and the cavity is not enlarged. The left ventricle is greatly magnified, being both dilated and thickened, except at the apex, where, as happens in every case of advanced aortic regurgitation, the walls are remarkably thin, not exceeding three lines in thickness. This is the point upon which the reflux column of blood falls at the commencement of ventricular diastole, whilst, in systole, it is shut off from the active portion of the ventricle by the approximation of the ventricular walls, and is not, like these, subject to the functional stimulus to increased nutrition and devolpement. The aortic valves are rigid and calcified, and, in regard to function, both obstructive and incompetent. The coronary arteries are healthy; I dissected one of them to-day, and found it flaccid throughout, and strictly normal in structure. With the exception of a few specks of atheroma at the root of the vessel, there is no disease of the aorta itself. The remarkably resonant character of the second murmur is explained by the condition of the valves. I have endeavoured to show elsewhere that this recurrence may be attributed to one of two causes, when aneurism is not present—namely, extreme calcification of the aorta itself or a condition of valves such as exists in this case. The ringing quality of the second murmur, no doubt, was due to the calcareous condition of the aortic valves.—*January* 13, 1877.

TRANSACTIONS OF THE CORK MEDICO-CHIRURGICAL SOCIETY.

SESSION 1876–77.

President—Dr. Stephen O'Sullivan.
Secretary—Dr. Ringrose Atkins.

Case of Difficult Labour in a Dwarf, complicated with Convulsions; delivered by the Cephalotribe. Under the care of E. R. Townsend, junr., M.D.

M. Healy, aged thirty-two, a dwarf, whose height was only 3 feet 9 inches, and whose legs and arms were much deformed from rickets, was admitted into the Lying-in Hospital, Cork, on 11th October, 1876. She was at the full time, and, although not in labour, she was taken in, as she was suffering from great œdema of the labia. On Thursday, 12th October, she complained of headache, and about 6 p.m. was seized with a violent convulsion; she remained in a semi-comatose state for some hours. At 9 she was ordered a dose of 10 grains of chloral hydrate; this she swallowed easily and slept for some time. She then got 5 grains of chloral and 8 of bromide of potassium every two hours during the night.

At 9 a.m. on the 13th she was quite conscious, but complained of intense headache; her breathing was quick; her pulse also quick and weak. She was then ordered two pills of calomel and colocynth, to be followed by senna mixture, as her bowels were confined. She swallowed the pills with difficulty, but soon after got a convulsion and was again insensible after it, so that she could not swallow the senna. The convulsions returned again and again during the day, and at 6 p.m. I found her quite insensible; head hot; veins of head full; pulse weak and very rapid. No symptoms of labour. I ordered an enema of castor oil, and six leeches to be applied to the temples. At 9 the os uteri was about the size of a shilling, and evident uterine contraction had commenced; bowels relieved by enema; leeches bled freely; still convulsed. On examining, per vaginam, I found the promontory of the sacrum very easily reached with the finger, and the distance between it and the symphysis pubis so small as scarcely to admit the two fingers to pass. The head could be felt above the brim; the os just beginning to dilate. As the labour was only commencing it was of great importance to quiet the convulsions so as to give time for Nature to dilate the parts and assist in the delivery, as from the deformed condition of the pelvis I apprehended great difficulty in the case. The chloral having certainly quieted the convulsions the previous night, I determined

to repeat it, and, as the patient was unable to swallow, I ordered 20 grains to be given in an enema of starch, and repeated every four hours. During the night she got three enemas and retained them, and there was no return of the convulsions after the first enema. On Saturday, 14th, I saw her again at 9 a.m. She could be roused a little; could swallow water with difficulty; pulse rapid and feeble; breathing very hurried. The os was dilated about half its proper size; the caput succedaneum projecting into the brim, but the head itself still above it; uterine action stronger; fœtal heart audible and strong. She remained in the same state all day making very little progress. At 9 p.m. the fœtal heart quite inaudible; os nearly fully dilated. It would dilate fully if it could get above the head, but was prevented by being pressed against the contracted brim by the head, which was now fixed in the brim. Pulse very feeble and rapid; breathing laboured and hurried. I attempted to deliver with the long forceps, using Barnes's forceps in the transverse diameter, and tried to extract, but without making the slightest advance. After using as much force as was justifiable, and finding it quite impossible to deliver her with the forceps, it was deemed necessary to perforate, and this I immediately did. Having perforated and broken up the brain with a crotchet, I applied Braxton-Hicks's cephalotribe, passing the blades as far up as possible, and crushed the head. The powerful screw enabled me to bring the blades almost into contact. I then commenced to extract, and without using much force I easily brought down the head, crushed completely; the blades having been applied so far up, they reached the upper part of the thorax and had completely crushed in the sternum, and thus enabled me to bring the body of the child through the narrow brim. The placenta and child came away together, so that it must have been detached some time, and may have been the reason why the sounds of the fœtal heart ceased so rapidly, or the death of the child may have been caused by the spasmodic contraction of the uterus due to the convulsions, as the heart sounds ceased before there had been any very great pressure on the head in the pelvis. During the operation the patient's stomach had been several times sick, and she vomited a quantity of dark grumous-looking matter. She became conscious before the operation was concluded, and swallowed some brandy and milk afterwads. During the night she was supported on beef-tea; her stomach was not again sick, and she passed a quiet night. On Sunday she was quite conscious; took nourishment well; pulse 120, weak, but not so weak as formerly; not much tenderness or soreness; swelling of the labia less.

16th.—Passed a good night; had no tenderness on pressure; swelling of labia almost gone; passed urine in the bed, a little was saved and tested; it contained no albumen.

17th.—Much the same; still going on fairly.

18th.—Passed a good night; quite conscious; talked to her husband,

and took some brandy and milk from him. Just as he left the hospital she became suddenly very much oppressed, and died in a few minutes.

A *post mortem* was held twenty hours after death. There was no appearance of peritonitis; the peritoneum was healthy-looking, and so were the intestines. The uterus of course was large; the left broad ligament seemed to be much thickened, but this was not of a recent date. On measuring the pelvis we found the antero-posterior diameter only measured $1\frac{9}{16}$ of an inch across. The transverse diameter was $3\frac{1}{2}$ inches. On opening the chest there did not appear to be anything abnormal until we opened the heart, which was small. There was a large fibrinous polypus occupying almost the entire of the right auricle attached to the walls of the heart near the tricuspid valve. This was evidently the cause of the sudden oppression and death of the patient.

This case presented several points of great interest. The woman was the most extreme example of deformity from rickets I ever saw. The convulsions were very severe, but were checked, and eventually controlled completely by the chloral given either by the mouth or as enemata when the patient could not swallow. The examination after death enabled us to make a very accurate and careful measurement of the pelvis, and we found the conjugate diameter only measured $1\frac{1}{16}$ of an inch across, whilst the transverse was $3\frac{1}{2}$ inches. This case proves the rule laid down by Dr. Barnes in his work on "Obstetric Operations," second edition, page 302, that cephalotripsy is quite practicable with a pelvis measuring an inch and a half in the conjugate diameter, and that the risk to the mother is inconsiderable compared with that attending the Cæsarean section—the fatal result in this case being due to the formation of an organised fibrinous polypus in the heart, and not to the effects of the operation.

MAMMARY SECRETION IN NEWLY-BORN INFANTS.

Faye (*Nordiskt Med. Arkiv*, Vol. VIII.) states as the result of his experience that about 95 per cent. of newly-born children secrete a greater or lesser quantity of milk. Sex seems to have nothing to do in determining the occurrence, the only fact observable being that of these few in whom the phenomenon was absent the majority were boys. In all cases the milk made its appearance between the second and the tenth day, and in nearly half the cases on the fourth or fifth day. As a rule it occurred synchronically with the falling-off of the umbilical cord. No connexion was traceable to the occurrence of hæmorrhage from the genitals in girls. The secretion resembled colostrum both histologically and chemically. The author regards the phenomenon as physiological and not pathological, and is inclined to adopt Bouchut's theory—namely, that it is due to a "*diathesis caseosa*" common to both mother and child. R. J. H.

CLINICAL RECORDS.

Curious Case of Ossification of Eyeball Removed for Sympathetic Mischief in the Fellow-eye. By H. Macnaughton Jones, M.D., M.Ch., F.R.C.S.I. and Edin.; Surgeon, Cork Ophthalmic and Aural Hospital, &c.

I have just removed an eyeball under the following circumstances:—A woman, aged fifty, consulted me for dimness of vision in the left eye. This had rapidly increased of late, and was accompanied with muscæ volitantes. On examination I found the papilla in a highly congested condition, with a large crescentic patch of atrophied retina over it. The right eye was painful to the touch, very hard, and blind. The cornea of the right eye was leucomatous, from the effect of an old inflammation from which she suffered about twenty-five years since. Something in the extreme hardness of the eye struck me as unusual, exceeding anything I had ever felt, and I advised the enucleation of this useless globe as the best chance of arresting further mischief in the left eye. On removing the eyeball I found it completely ossified, and, on letting it drop, it fell like a stone on the table. Dr. Atkins has sent me this report of the examination of the eyeball:—"On slitting up the sclerotic, this tunic, with the cornea, peeled off cleanly, the ossified mass turning out like a nut out of the shell. Beyond being somewhat thinned, and the cornea being opaque, there was no morbid condition of these structures. The lens was adherent to the iris, and merely represented by a tough gritty membrane of a white colour. The pigmented layer of the choroid was much thinned, and was spread out over the bony mass, and by careful manipulation was completely stripped from the latter, being connected with it by some minute withered vessels, which pierced the osseous structure. The disc representing the surface of attachment of the anterior chamber was open, and the bony globe contained a brownish serous fluid, with masses of yellow caseous material. The remains of the retina were attached to the inner surface of the osseous structure, which, when com pletely freed from the tissue, resembled in form the empty shell of the echinus. The optic nerve was separated from its retinal expansion, no aperture for its passage existing in the bony case."

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, M.D., F.K.Q.C.P.

Vital Statistics

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, May 19, 1877.

Towns	Population in 1871	Births Registered	Deaths Registered	Deaths from Zymotic Diseases							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhœa	
Dublin, -	314,666	743	731	2	47	7	—	16	30	7	30·2
Belfast, -	182,082	506	430	—	23	2	—	6	22	11	30·8
Cork, -	91,965	184	189	—	—	—	—	—	5	9	26·8
Limerick, -	44,209	110	81	—	—	—	—	—	3	4	23·8
Derry, -	30,884	73	41	—	—	—	—	1	1	—	17·3
Waterford, -	30,626	74	46	—	—	—	—	—	—	—	19·3
Galway, -	19,692	55	64	—	—	—	—	—	—	1	42·5
Sligo, -	17,285	23	35	—	—	—	—	1	2	—	26·3

Remarks.

The mortality was excessive in Galway, very high in Belfast and Dublin, high in Cork and Sligo, moderate in Limerick, and low in Waterford and Derry. The death-rate was 23·0 per 1,000 of the population annually in London, 23·4 in Edinburgh, and 29·3 in Glasgow. Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the rate of mortality was 29·3 per 1,000 in Dublin. Zymotic affections caused 138 deaths in Dublin, against 102 in the preceding four-week period. A severe and fatal epidemic of measles prevails in this city and in Belfast. Fever is also fatal in both cities, and whooping-cough is increasing in Dublin, where also 9 deaths from croup were registered. Diarrhœa caused 9 deaths in Cork and 4 in Limerick; but otherwise the provincial towns are comparatively free from zymotic disease. Of 30 deaths from fever registered in Dublin, typhus caused 9, enteric 14, and simple continued fever 7. The mortality from respiratory affections were still above the average, owing to the continued inclemency of the weather—the deaths numbered 143, and included 108 from bronchitis and 22 from pneumonia. The death-rate from these affections is, however, falling rapidly with the advancing spring.

Meteorology.

Abstract of Observations made at Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of May, 1877.

Mean Height of Barometer,	29·870 inches.
Maximal Height of Barometer (on 1st at 9 a.m.),	30·430 ,,
Minimal Height of Barometer (on 28th at 7 a.m.),	28·844 ,,
Mean Dry-bulb Temperature,	49·6°
Mean Wet-bulb Temperature,	46·0°
Mean Dew-point Temperature,	42·2°
Mean Elastic Force (Tension) of Aqueous Vapour,	·268 inch.
Mean Humidity,	75·5 per cent.
Highest Temperature in Shade (on 26th),	63·5°
Lowest Temperature in Shade (on 5th),	33·9°
Lowest Temperature on Grass (Radiation) (on 5th),	28·8°
Mean Amount of Cloud,	63·0 per cent.
Rainfall (on 18 days),	2·343 inches.
General Direction of Wind,	E. and N.E.

Remarks.

So cold and winterly a beginning of May had not been experienced since 1866, when snow and hail fell on several consecutive days from the first of the month. The polar air-current prevailed uninterruptedly to the 6th, with cold, dry, and parching weather. Hot suns by day alternated with cold nights, but at all times the wind was keen and searching. The second week was also generally cold, with frequent rains. In the third week, although the weather was extremely showery, spring made a considerable advance. On the 15th, for the first time in this exceptionally late season, the thermometer exceeded 60° in the shade in Dublin. From the 17th to the 22nd the United Kingdom was under the influence of an erratic cyclonic system, which first travelled from the S.W. of England to the N.E. of Scotland, and subsequently pursued a retrograde course until it finally disappeared over the Mediterranean. As it travelled away the barometer rose quickly, the air became cold and dry, and the polar air-current once more prevailed. No rain fell in Dublin for a period of seven days, until, on the 27th, the approach of a deep depression brought gales and rains to our coasts. The month closed with broken weather, due to the advance of another cyclonic system from the Atlantic. A peal of thunder was heard at 5 p.m. on the 16th. A heavy hail-shower fell on the 29th. Solar halos were seen on the 5th and 22nd. High winds prevailed towards the end of the month. From January 1 to May 31, 1877, rain has fallen on 103 days to the amount of 15·673 inches. A rainfall of 8·975 inches on 78 days occurred in the corresponding five months of 1876.

PERISCOPE.

Edited by G. F. Duffey, M.D., F.K.Q.C.P.

GELSEMINA AS A MYDRIATIC.

Dr. Ringer and Mr. Murrell have observed the curious fact that, while the internal administration of the tincture of gelsemium in doses sufficiently large to produce toxic effect caused contraction of the pupil,[a] the local application of a solution of the hydrochlorate of gelsemina to the conjunctiva was invariably followed by dilatation of the pupil. Mr. Tweedy, of the Royal London Ophthalmic Hospital, gives in detail (*Lancet*, June 9) an interesting description of the changes which take place within the eye, and in the extra-ocular muscles, as a result of the topical application of the drug. As the practical results of his experiments, it may be stated that gelsemina has superior advantages to atropine as a mydriatic. When locally applied it readily dilates the pupil, and when used of sufficient strength temporarily overcomes the accommodation. It is preferable to atropine in cases where the power of accommodation is not great, where it is necessary to overcome the accommodation for a short time only for the purpose of estimating the degree of ametropia, because its effects are more transient, and the confusion of vision during its action is less. To insure paralysis of accommodation within three hours, a solution of at least eight grains to the ounce must be used every fifteen minutes for the first hour, and every half hour afterwards. Accommodation will have practically returned within thirty hours. And the mistiness and confusion of vision when the eye is fully under the influence of gelsemina is nothing like so great as when atropine has been used.

ON THE CHANGES IN THE CIRCULATION WHICH ARE INDUCED WHEN THE BLOOD IS EXPELLED FROM THE LIMBS BY ESMARCH'S METHOD.

Messrs. Brooke and Hopwood have studied the effect on the rapidity of the pulse caused by the application of Esmarch's bandage to one or both lower extremities. The following are the general results of the experiments:—1. Whilst one lower limb is being bandaged an increase in the pulse-rate always occurs, which may continue for some minutes, but which more commonly falls quickly to about the normal rate. 2. During the bandaging of the second lower limb the pulse again becomes quicker, but the quickening is only temporary; when the pulse falls after this second rise it may, however, remain permanently a few beats above the normal.

[a] *Lancet*. 1876. Vol. II., p. 78.

3. When both bandages are suddenly removed there is an instantaneous and usually remarkable quickening of the heart-beat, which only lasts for a very short time, and which is followed by a fall to below the normal rate, and sometimes by irregular action of the heart; this condition is usually of brief duration. When the bandage is applied the blood is expelled from the veins, capillaries, and arteries, and also lymph is forced out of the bandaged limbs. The venous blood passes mainly into the veins of the trunk, being prevented from passing into the unbandaged limbs by the valves at the origin of their veins. The arterial blood, on the other hand, is distributed through the vessels of the trunk and extremities. Hence the effect of bandaging is to increase for a time the pressure on the right heart in greater proportion than that on the left. The expressed lymph being added to the venous blood increases this effect, and may also affect the heart-beat by altering the quality of the blood. When the bandage is removed the effect on the arteries and veins is different. The blood can at once flow into the arteries, while the regurgitant flow into the veins is prevented by the valves. Hence the immediate effect of loosing the bandage is to relieve the arterial pressure, leaving the venous as it was. Here, again, the pressure on the right heart is for a short time high in proportion to that on the left. The authors think that this diminution of the normal difference between the pressure on the right and left sides of the heart is the cause of the increased frequency of pulsation. They show that in all those cases cited by Marey, in which a lowering of arterial tension seemed to increase the rapidity of the heart-beat, this result might as well be explained by a raising of venous tension, and this explanation agrees with the results obtained on the frog's heart by Blasius, who found that, the arterial tension remaining constant, the beats of the heart increased up to a certain point with the increase of venous pressure, as well as with the fact that in mitral stenosis with venous engorgement a rapid pulse is the rule. The following are the conclusions of this interesting paper:—"1. When the limbs are compressed, the quickening is explained by a diminution of the normal difference in the blood pressure *due to the increase of pressure on the right side.* 2. The return to the normal, or to near the normal rate after one limb has been compressed, is due to the fact that the normal relative difference has been re-established. 3. The quickening, when the limbs are unbandaged, is due to a diminution of the normal difference in the blood-pressure, *owing to a decrease of pressure in the left side.* It is quite conceivable that in the first case the right side of the heart may initiate the more rapid contractions of the whole organ, and that in the second case the left may do so."—*Journal of Anatomy and Physiology*, 1877, p. 307.

J. M. P.

In Memoriam.

HENRY WILSON.

Died, Wednesday, 13th June, 1877, aged 39 years.

Since the issue of our last number a sad loss has befallen us in the untimely death of Mr. Henry Wilson. Besides contributing valuable Original matter Mr. Wilson wrote nearly all the Reviews of Works on Ophthalmic and Aural Surgery which have appeared in our pages during the past ten years; and, under these circumstances, we feel at liberty to yield to the promptings of personal regard, and add his name to the small list of those whose deaths have been noticed in The Dublin Journal.

Mr. Wilson spent many years of his early life at Bonn and Heidelberg, and there acquired a perfect knowledge of the French and German languages, which, no doubt, enabled him to profit to the utmost by his subsequent sojourn, as a student of Ophthalmic and Aural Surgery at Berlin, Vienna, and Paris. On his return from Bonn, he determined to devote himself to the Profession of Medicine; and as he was under the guardianship of his relative, Sir William Wilde, he was led from the outset to devote special attention to diseases of the eye and ear, and, indeed, resided during a large portion of his time, while a student, in St. Mark's Hospital, and so had extremely ample opportunities of becoming familiar with every variety of disease and injury affecting the organs of sight and hearing. He obtained his Surgical Licence in 1858; and having, as already stated, studied at the Continental Schools, he became at first House Surgeon at St. Mark's Hospital, then Assistant-Surgeon, and subsequently Junior Surgeon, and finally, on the death of Sir William Wilde, Senior Surgeon. Availing himself to the utmost of the opportunities given to him by his connexion with this institution,

Mr. Wilson for many years devoted himself with great earnestness to professional study; he spent several hours of each day in the wards or in the out-patients' room of the Hospital, and kept himself fully up in the literature of his specialty. As Dr. Jacob and Sir William Wilde, who, at that time, divided the ophthalmic and aural practice in Dublin, were both growing old, the one by right of years, the other prematurely, and Mr. Wilson had returned to Ireland with a knowledge of the ophthalmoscope, then but recently introduced, he very soon obtained some private practice, and might have secured more had he not been scrupulous to avoid any interference with Sir William Wilde's patients; and over and over again it happened that patients who had left Sir William, were allowed by Henry Wilson to go to London for operation, when he might easily have retained them in his own hands, if he had not been so careful to avoid becoming Sir William's competitor. He proved, however, a very successful teacher, and the students who attended his clinic soon supplied him with patients; while his own kindly and cheerful manner, the spontaneous outcome of a genial nature, and his confidence, the legitimate fruit of many a long day spent in St. Mark's, seldom failed to make friends of those who entered his study. Although, for many years, every guinea was of consequence to Henry Wilson, he always acted on the motto, "Live and let live;" not only did he refrain from undertaking cases which did not strictly fall within his specialty, but he refrained also from drawing patients who might need special advice out of the hands of their ordinary attendants; and instead of looking with a jealous eye on the competitors in his own chosen field, we know that some years ago he exerted himself to obtain for one of the most dangerous of them, who had not then any hospital appointment, admission on the staff of St. Mark's. He never grew avaricious; he neither tried to get all he could nor held it fast when it had passed into his hand; and to rich and poor, in manner and bearing, he was the same, and so

it came to pass that he became a successful man without creating in the minds of his professional brethren either envy or distrust; and, at the time of his death, filled with acknowledged propriety the posts of Examiner in Ophthalmic Surgery to the University of Dublin, and Professor of Ophthalmic Surgery to the Royal College of Surgeons, on the Council of which he also had a seat. For some years he likewise acted as Surgeon to the City of Dublin Artillery, and actively exerted himself to advance the interests of the Militia Surgeons.

Although his last illness was appallingly sudden, there were many circumstances which seemed to show that for a considerable time his health was breaking down. He had, in great part, left the work at St. Mark's to his friend and colleague, Dr. Rainsford, to whom, during his frequent absences from town, he also entrusted his private patients, and who now succeeds him in the Hospital, while but a few months ago he had made a will bequeathing the reversion of about five thousand pounds to the Hospital, and his library, case-books, and instruments to Dr. Rainsford. He often went from home as if he felt he needed change and rest, and he had lost much of that cheerfulness which he showed in earlier and apparently less prosperous days. No one, however, was prepared for the melancholy event when it came, and his death has left on the many who knew and valued him a deep, sad feeling of bereavement—and in the smaller circle who had a nearer view of his life and character, many regrets, which, although they find no place on this page, will remain as tender memories in the heart.

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OF

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PART I.

ORIGINAL COMMUNICATIONS.

ART. V.—*Tuberculosis.*[a] By ARTHUR WYNNE FOOT, M.D., Univ. Dubl., F.K.Q.C.P.; Senior Physician to the Meath Hospital and County of Dublin Infirmary; Diplomate in State Medicine, Trin. Coll. Dubl.

MR. PRESIDENT, FELLOWS OF THE COLLEGE, AND GENTLEMEN,—My principal object in the former lecture was to draw attention to the strongly-expressed view of the present day as to the unity of phthisis in the sense conceived by Laennec, and to the evidence that this unity has, since his time, been shown to have an anatomical basis in constant developments or overgrowths of the lymphatic elements which so abundantly exist in and about the pulmonary air-cells. These small-celled overgrowths of lymphatic tissue constitute tubercles which, when simultaneously formed in great numbers, as in acute disseminated miliary tuberculosis, preserve such a remarkable uniformity in colour, shape, and size, as to have long ago suggested the probability of this mode of origin, but which also, on the other hand, when locally developed, and when lapse of time has allowed of their undergoing the nutritive modifications they are subject to, and of becoming confused and identified with inflammatory products arising from

[a] Two Lectures delivered before the King and Queen's College of Physicians in Ireland, on February 19th and 26th, 1877, being the fifth and sixth of the Annual Scientific Lectures for 1877.

their presence, are often so far from being obvious to a superficial examination that their original existence as the cause of the pathological phenomena has been denied, and the appearances observed have been attributed to other causes. To-day I would endeavour to take the subject two steps further. I would allude to the views that the exciting cause of the lymphatic irritation which results in the formation of tubercle is frequently the reception into the economy of the *débris* of animal products which, under certain circumstances and in many constitutions, appear to be possessed of qualities which we can hardly misname in calling infective or poisonous. I would also indicate that the scrofulous constitution appears to unite in itself both the means of a self-manufacture of such an infective agent by virtue of peculiarities in its secretions, and a special susceptibility to its effective operation owing to the eminent irritability of the lymphatic tissue in the subjects of that diathesis.

The subject of the transmissibility of tuberculosis is one of the greatest moment and widest practical importance, having points of contact with questions of social interest and of public hygiene. In the works of Aristotle[a] is to be found the earliest notice of the opinion that phthisis is infectious. He states that this disease makes the breath corrupt and offensive, and that those who approach the diseased person breathe air vitiated by him. At all times, and in many places, though in some more so than in others, a feeling of uncertainty on the question of the infectiousness of phthisis has existed. Morgagni believed in the direct contagiousness of the disease to such an extent as scarcely ever to have made an autopsy of a phthisical subject himself, and to object to their being made by others on account of the danger to the operator, and he thus accounts for why he has written so little upon phthisis. That he retained this prejudice, if it is to be called so, all his life, may be inferred from one of his letters, in which he writes, *phthisicorum cadavera fugi adolescens, fugio etiam senex.* It has certainly been considered by some experienced persons that emanations from the lungs and skin of patients in the advanced stages of phthisis are productive of consumption, more particularly in young persons of a scrofulous diathesis, and in those who are predisposed by other causes, or who are subjected to several concurring influences.[b] This old

[a] Copland. Dict. Med. Vol. III., p. 1136.
[b] Copland. Op. cit. P. 1125.

belief has recently been supported in this country by William Budd,[a] who holds that tubercle is a true zymotic disease, in the same sense as typhoid, scarlet, and typhus fever, never originating spontaneously, but perpetuated according to the law of continuous succession, and that the tuberculous matter itself is, or includes, the specific morbid matter of the disease, and constitutes the material by which phthisis is propagated from one person to another, and disseminated through society. To make this view even intelligible to many, it would have to be conceded that the contagium must be very much less active than that of the diseases with which it is compared; otherwise, as Cotton[b] remarks, institutions where phthisical subjects are congregated, as in the Brompton Hospital, would be nothing more or less than pest-houses, whereas the occurrence of phthisis among the officials and others closely connected with the sick in that hospital has been very rare, and the deaths very few. It has also been objected to the contagion theory that outbreaks of tuberculosis, such as might be expected to occur on such a hypothesis, are not observed; but Virchow[c] has long ago drawn attention to the epidemic appearance of tuberculosis in the early months of summer, and he asks himself the question—Can certain seasons effect, in tumours as in plants, a special activity of growth and increase?

A practical question lies on the surface of this much-mooted point of the contagiousness of phthisis—namely, shall the physician approve of the marriage of a phthisical patient? This question, with reference to its consequences, has three aspects—the probable effect on the patient, the effect on offspring, and the possibility of the communication of the disease from the husband to the wife, or the wife to the husband. Flint[d] discusses this subject on the basis of his own statistics, and concludes that, with reference to the phthisical patient, the influence of marriage on the disease is not unfavourable. He admits that this opinion may be at variance with that generally held by medical men. The prevailing opinion against marriage appears to be founded on the supposition that the exercise of the sexual functions will be injurious. He dissents from this view, unless physiological limits are exceeded, and admits that there are moral

[a] Lancet. Oct., 1867.
[b] Cotton. Lancet. Nov., 1867.
[c] Virchow. Path. des Tum. 1871. Tome 3, p. 170.
[d] Flint. Phthisis. 1875. P. 412.

influences connected with marriage which may be salutary. Louis's inquiries of phthisical patients respecting their amative propensities would tend to lessen apprehensions on the score of over-indulgence. The great majority of those whom he questioned on this subject replied in such a manner as to show that they considered the inquiries not a little absurd.[a] The effect of pregnancy on a woman affected with phthisis does not, from Flint's cases, appear to be unfavourable. As to the influence on the offspring, there may be none—*i.e.*, no offspring, as pregnancy in phthisical patients is by no means common; but, in the event of there being children, they may long appear to be healthy, because the predisposition, which is undoubtedly inheritable, often gives no manifestation until after puberty. As to the third aspect of the question, which involves the inquiry—Is the disease ever communicated through the intimate relations belonging to married life?—he concludes that the analysis of his cases does not furnish facts sufficient to render the communicability of phthisis in this way probable. The few instances in which there was room for suspicion that the disease had been thus communicated, he thinks may be explained by the law of chances, according to which a disease of such frequent occurrence as phthisis would affect in succession a husband and wife, or *vice versâ*, in a certain proportion of cases. There are not many writers, in recent times, who have expressed decided opinions upon this point, probably on account of the great difficulty of forming them; but among those who have is Gueneau de Mussy,[b] who holds that phthisis is transmissible by cohabitation, by great and prolonged intimacy, during all the stages of the disease. His experience leads him to believe that the transmission of phthisis more frequently takes place from the husband to the wife than from the wife to the husband, and he believes the explanation is to be found in this, that the female who conceives by a phthisical husband contains in herself an embryo predisposed to tubercle; she carries, as it were, the diathesis in her womb; and, moreover, the devotion of the woman exposes her more and more continuously to contagion than the male sex. According to Buhl,[c] the infective agent passes over with the seminal fluid to the ovum, and so becomes hereditable. Andral observes that he has certainly been more than once struck at

[a] Researches on Phthisis. Syd. Soc., 1844, p. 278.
[b] Gueneau de Mussy. L'Union Méd., No. 138. 1859.
[c] Wagner. Man. Gen. Path. 1876. P. 455.

seeing women begin to present the first symptoms of pulmonary consumption a short time after their husbands had died of the disease. He asks—Is it wise to deny absolutely and in all cases the contagion of phthisis, although, no doubt, the facility of its action has been very much exaggerated? Williams[a] thinks that, though we have no evidence that pulmonary consumption is infectious, like small-pox, scarlatina, or typhus, a noxious influence may pass from a patient in advanced phthisis to a healthy person in close communication, and may produce the same disease. He, therefore, always recommends such patients to sleep alone, and to use measures for increasing the purity of the air as much as possible. Villemin, who is a strong contagionist, holds that the transmission of the malady in the human species takes place most frequently by means of the dried, expectorated tuberculous matter being accidently reduced to powder, and carried by the air into the lungs. This idea reminds us of the method of inoculation of small-pox poison first practised in China, at a very remote period, by pulverising the desiccated scabs, and introducing the variolous snuff into the nostrils.[b] The cases of phthisis occurring in animals attached to the sick, and who eat the expectoration of their masters or mistresses, struck the older observers who noted these events. Jacobi[c] reports a case of this kind in a dog who swallowed his master's expectoration and died of phthisis; and, in the beginning of the century, Malin[d] reported the cases of two dogs which both eat their mistresses expectoration, and died, both of them, of phthisis. There are many proofs that the expectoration in phthisis forms a very efficient and active vehicle of infection. Marcet[e] proposed to use the sputa of patients as a means of diagnosis of tubercular disease, and has published the results of his inoculations of animals with them for this purpose.

Now as to another possible means of infection, Laennec[f] proposes to himself the question—Is it possible to give rise to the matter of tubercle, at least locally, by direct inoculation? but declines to express an opinion on the subject, stating that he was acquainted with only one fact which bore upon this point—his own case, in which, about twenty years previously, while examining some

[a] Williams. Pulm. Consumption. 1871. P. 137.
[b] Cycl. Pract. Med. Ziemssen. 1875. Vol. II., p. 334.
[c] Ruehle. Cycl. Pract. Med. Ziemssen. Vol. V., p. 497.
[d] Daremberg. Expect. dans la Phthisie Pulmon. 1876. P. 62.
[e] Marcet. Med. Chir. Trans. Vol. L., p. 440.
[f] Laennec. Dis. of Chest (Forbes) 1827. P. 330.

vertebræ containing tubercles, he slightly grazed the forefinger of the left hand by a stroke of the saw. The scratch was so slight that he paid no attention to it; but, on the following day, it was slightly inflamed, and there gradually formed on it, and almost without pain, a small roundish tumour, apparently confined to the skin, and which, at the end of eight days, was of the size of a large cherry-stone. At this period the epidermis cracked, and displayed the small tumour within, which was yellowish, firm, and in every respect like a crude, yellow tubercle. He cauterised it with the deliquescent hydrochlorate of antimony, and felt no pain from its operation. At the end of a few minutes, however, after the fluid had penetrated the whole substance of the tumour, he detached it by a gentle pressure. The walls of the cavity which had contained this body were of a pearl-grey colour, slightly transparent, and without any redness. He applied the caustic afresh. The part soon healed, and up to the time he wrote (1819) he had found no further effects from the accident. It is a curious fact, however, that, in 1822, Laennec was obliged to give up his practice, owing to phthisis, of which he died in 1826. It is also a remarkable coincidence that Bayle, Laennec's illustrious fellow-pupil and friend, likewise fell a victim to the disease with which their names will be for ever associated.

On the other hand, it is a matter of observation how rarely wounds incurred in the dissection of phthisical bodies are followed by phthisis, even when severe symptoms of absorption have occurred. Woillez[a] alludes to his own case, in which, under the care of Louis, Valleix, and Nélaton, he recovered from a severe attack of septicæmia, the result of the prolonged handling of tuberculous lungs with an excoriated thumb, and up to eighteen years afterwards there had been no symptom of tuberculosis. He also mentions that one of his colleagues, having failed in inoculating himself with the grey granulations from a tuberculous lung, wrote to the Académie des Sciences (Aug., 1869), placing himself at their disposal to repeat the experiment. Such negative results should not, however, encourage repeated auto-inoculations with tubercle, as it may be remembered that Alibert and Biett, who held the same doctrine with regard to carcinoma, and performed similar experiments upon themselves, died of carcinomatous affections. Deliberate inoculations of human subjects with tuberculous matter have been very seldom performed, or, if so, the results have been

[a] Diagnostic Médicale. 1870. P. 1034.

kept secret, and in reference to the failure—if it ultimately prove to be a failure—of the experiment of Woillez's colleague, the necessity of a receptivity in the subject for the effectual operation of most poisons is not to be overlooked, nor is the antidotal influence of robust health to be disregarded. No one disbelieves in the communicability of the poison of rabies, because inoculation with the saliva of rabid dogs has sometimes failed to produce hydrophobia. Furthermore, human inoculation with phthisical matter has been successfully performed, as in the remarkable case at Syra, in Greece.[a] In that case, Demet, Paraskeva, and Zallonis, inoculated a human patient, fifty-five years of age, whose history gave no indication of tuberculous taint, and whose lungs were perfectly healthy as far as a physical examination could discover, but who was suffering from gangrene of the great toe of the left foot, due to obliteration of the femoral artery. Amputation of the limb was proposed by the surgeon, but would not be submitted to; and, as a fatal termination was inevitable, a quantity of sputa from a man who had abscesses in his lungs was inoculated in the upper part of the left thigh. About three weeks afterwards, auscultation revealed very slightly increased respiratory murmur at the summit of the right lung, and somewhat prolonged expiration in the subclavicular region. In thirty-eight days after inoculation, the man died from gangrene, and on examination of the body it was found that the upper lobe of the right lung had seventeen tubercles in the first stage of development, two of which were the size of a lentil, the others being as large as a grain of mustard; they were of a grey colour, and very hard. Two similar tubercles existed at the apex of the left lung. At the centre of the convex surface of the liver were two tubercles, one as large as a shelled pea, the other smaller, both being very hard, and of a yellow colour. The limited number, early stage, and small size of the tubercles appeared to have a direct relation to the brief interval between the inoculation and the decease of the patient.

The history of the experimental generation of tubercles dates from the time of Kortum (1789), in the latter end of the past century, but the first series of systematic efforts to inoculate animals was undertaken by Villemin, Professor at the Val de Grâce Hospital, Paris. Having been led by induction to believe that tuberculosis was a specific and contagious disease, Villemin performed a series of experiments with the inoculation of tubercle

[a] Br. and For. Med. Ch. Rev. 1874. Vol. LIV., p. 473.

on rabbits and other animals, the results of which he communicated to the French Academy of Medicine in 1865,[a] he added the details of a further series in 1866,[b] and in 1868 published the work[c] which embodies his views upon the subject, and his replies to the arguments which have been advanced against them. From the time of Villemin's inoculations up to the present day this field of experimental pathology is being diligently cultivated both in England and on the Continent. While almost all are agreed that in the great majority of cases tubercular inoculation reproduces tubercle, it has been abundantly shown that other substances, not tubercular, seem capable, though less frequently, of producing similar appearances. Wilson Fox[d] found in guinea-pigs inoculated with vaccine lymph and with putrid muscle, and in one beneath whose skin he simply inserted a piece of cotton thread, as intense and marked specimens of tuberculosis as appeared in those on whom inoculation had been practised with the most typical grey granulations from the lungs or the meningeal vessels. Cohnheim and Frankel[e] found miliary tubercles in the peritoneum (the place of inoculation) and in the thoracic and abdominal viscera, after the inoculation of inert substances, such as gutta-percha, blotting-paper, and other things. Waldenburg ascertained that ordinary pus of traumatic origin can produce tubercle when inoculated, but that it does so much less frequently than when miliary tubercle or caseous matter is used. With these experiments the tubercle lost its specific character, as far as any infective property peculiar to itself was concerned. Some began to hold that it was the dead and inspissated pus at the seat of inoculation, the taking up of which into the circulation caused the formation of tubercle; others regarded the formation of septic matters in connexion with the inoculated substances as probably necessary to insure infection. In confirmation of this view, Bernhardt[f] found that disinfection of the tuberculous substance inoculated from man as well as from animals diminished its infectiousness to a high degree. Waldenburg[g] made experiments from which he concludes the infecting power of the morbid product

[a] Bull. Acad. Méd. XXXI., XXXII.
[b] Ibid. XXXII.
[c] Villemin. Études sur la Tuberculose. 1868.
[d] Wilson Fox. Artif. Prod. of Tubercle. 1868. P. 23.
[e] Wagner. Man. Gen. Path. 1876. P. 456.
[f] Wagner. Man. Gen. Path. 1876. P. 456.
[g] Waldenburg. Die Tuberculose und Scrofulose. 1869.

depended rather on its retaining its morphological than its chemical elements. He found more constant results when miliary tubercle or caseous matter, which had been preserved for some months in spirit and finally washed in water, were inoculated than when fresh matter was employed, evidently on account of the absence in the latter case of septicæmia, which carries off many of the animals in a few days before the effects of the inoculations can become manifest. He also found tuberculous matter effective when inoculated after being boiled, or having been left in contact with nitric acid, permanganate of potash, or chromic acid.[a] His idea that the infective power resides in the morphological elements, and not in an unformed contagium dissolved in the blood plasma or other juices, derived support from Bogoslowsky's inoculations with the serum only and the formed elements only of the same tuberculous pus, by which it was shown that the latter only were effectual. Waldenburg since then has made experiments to show that the solid elements inoculated are actually conveyed to the seat of the miliary formation by using tubercle or tuberculous matter mixed with aniline blue or carmine. He detected this colouring matter in by far the larger number of the miliary collections thus produced which he examined.

The identity of the tubercle artificially produced with that observed in man has been questioned, but the general opinion is that they are of a similar nature. Virchow examined the preparations which bore the results of Waldenburg's inoculations, and stated he was convinced of the identity of the miliary formations thus produced with real tubercle. One fact deserves to be prominently stated—viz., that the effects of infection are more certainly produced by the inoculation of tubercle than by that of other substances.[b] It has also been established that the intensity of the tuberculisation is completely independent of the quantity of matter inoculated. The results of these numerous experiments tend to modify very much Villemin's position that tubercle is a specific disease producible by tubercle alone. It appears that almost any irritation which gives rise to a focus of suppuration has the power, though in a very variable degree, of exciting locally that peculiar development of lymphatic tissue which is the most constant and striking anatomical feature of tuberculosis. It seems that the minutest particles of cheesy *débris* are to be regarded as endowed with the properties of a virus capable of causing the growth of

[a] Wagner. Man. Gen. Path. 1876. P. 457.

[b] W. Fox. Artif. Prod. Tub. 1868. P. 25.

tubercle by irritating certain elements of tissue. The corpuscular elements transported from the locus of infection excite the irritation and its results at the point where the secondary formation is produced, and in some structure of lymphatic nature. Inoculation appears to succeed best if small quantities of a not too irritant character are employed, while larger quantities and substances more strongly irritant commonly give rise to stronger inflammation and suppuration, and pyæmia is the result with multiple abscesses and speedy death, but not tuberculosis.[a] The means of transportation of the irritating element are either the lymphatics or the blood-vessels; it is thought the former, most probably, when the secondary formation of tubercle is near the infective focus and slowly developed; the latter, when from a distant source there is a sudden and diffuse generalisation of tuberculosis. For example, a catarrhal irritation of the bronchi would be followed by tubercular development in the neighbouring part of the lung, owing to the irritation arising from the secretion being propagated to the lymphatic structures in these organs by the lymphatic canals; while a sudden general miliary tuberculosis, following in the train of typhoid fever, would be due to dissemination through the blood-vessels of irritative elements originating in connexion with the intestinal lesions. Schüppel considers the proximate or exciting cause of the formation of primary tubercle in all organs to be a local inflammation, while the remote cause is the scrofulous or tuberculous diathesis, inherent or acquired; but though he admits that the tubercle detritus possesses infective properties, and is capable of causing the formation of tubercles, both in its neighbourhood and, by absorption, in distant organs, he would even here ascribe, in many cases, the eruption of tubercles to a predisposition of the secondarily affected organs, rather than to mechanical conveyance to them of the infective substance; for he thinks a mere mechanical distribution by the blood of the tubercle virus is incapable of explaining the apparently capricious manner in which the tubercles become disseminated.[b] All the careful and patient labour which has been expended on the subject of the artificial production of tubercle has served to extend the operation of the irritative virus from tubercular matter itself, in which it was at one time supposed to reside exclusively, to the detritus of inflammatory products, which have this much in common with tubercle,

[a] Wagner. Man. Gen. Path. 1876. P. 455.
[b] Br. and For. Med. Ch. Rev. 1874. Vol. LIV. P. 464.

that they are the *débris* of perishable cells. None of the experiments have disproved the fact that tubercular matter is inoculable, although they have shown that tubercle possesses properties capable of exciting textural change in common with the products of any inflammation, however originating.

But the subject of the infectious nature and transmissibility of tuberculosis crops up again in another most important and unexpected quarter, in connexion with food and milk. It has long been well known that among domesticated animals the bovine species were very liable to a disease presenting the symptoms, physical signs, and pathological appearances of tuberculosis as observed in the human race. For many years the identity of this bovine malady—known in Germany as the "Pearl-disease" ("Perlsucht"), from the appearance of the tubercular masses, which are called in England "Grapes" and "Angleberries"—with human phthisis was denied. Schüppel,[a] however, in 1872, published his observations, which seem to have fully established the absolute identity, in structure and development, of this cattle-disease with tubercle in man. The tuberculosis of cattle is known by veterinarians to be highly contagious; it has been frequently proved to be transmissible amongst bovine animals by cohabitation when stabled together, and that the usual medium of infection is the ingestion of fodder soiled with the expectoration of cattle suffering from this disease. Chauveau appears to have been the first to indicate the important relation which bovine tuberculosis may bear to public hygiene. It seems to be established that the digestive canal constitutes a channel of contagion readily disposed for the propagation of tuberculosis. It is not so much the meat of phthisical cattle which is likely to prove dangerous as their milk. The feeding of animals with tuberculous matter is a ready means of giving them phthisis, but unless the meat of phthisical cattle contains tuberculous matter in the shape of infiltrated lymphatic glands, it may not prove obnoxious, and, even then, culinary processes may insure safety. But the protection afforded by cooking is not to be too much relied on, as Gerlach, of the Berlin Veterinary School, in some of his experiments, found that tubercular masses an inch in diameter will, after half an hour's boiling, still possess infective properties, though in a lessened degree; muscle being in general a bad conductor, the high temperature only reaches its

[a] Schüppel. Ueber die Identität der Tuberculose mit der Perlsucht. Virch. Arch. 1872. P. 38.

interior after some time has elapsed. Klebs[a] has shown that the milk of tuberculous cows readily and quickly generates tuberculosis in different animals. He induced in this way tuberculosis in dogs, animals which are unlike rabbits and guinea-pigs in not being very susceptible of the tubercle. Gerlach produced tuberculosis in healthy calves, swine, sheep, and rabbits, by feeding them with the milk of a cow affected with pearly disease. The results of Klebs' experiments led him also to the conclusion that the use of the milk of tuberculous cows is liable to produce tuberculosis. The process commences as an intestinal catarrh, and then assumes the form of tuberculosis of the mesenteric glands; it afterwards affects the liver and spleen, and subsequently the thoracic organs. He asserts that the tubercle infection is present in the milk of phthisical cows whether they are slightly or gravely affected, and that it chiefly exists in the serous portion, as when the milk has been so filtered as to deprive it of its solid particles, the fluid portion appeared to be as active as before. It is milch cows which are most apt to become tuberculous, excessive and long-continued lactation having a powerful influence on the production of tubercle in cattle. The majority of the cows employed in agriculture—as they generally are in France—seem to be almost exempt from the disease, as well as those kept for breeding purposes, and which are only required to give milk for six weeks or two months. Tuberculosis in cattle is well known to be hereditary, and to be connected with peculiarities of temperament and configuration, those of a lymphatic nature, with thick skins, flabby tissues, and light unusual colours, being most predisposed. It has now been ascertained beyond doubt that tuberculosis is a common and a very destructive disease among cattle—dairy cattle especially, and more particularly those in towns; that the udder of these animals is one of the glands not unfrequently involved, and that their milk is infectious and capable of producing tuberculosis by its use. These facts should be borne in mind as possibly affording a clue to cases of tuberculosis in young children (whose powers of absorption are very active), which would be otherwise difficult to account for. The milk of phthisical cattle (called piners in Scotland) is, independently of its positively dangerous properties, objectionable as an article of food for children, from its deficiency in nitrogenous elements, fat and sugar, and the increased proportion of earthy salts it contains. These facts also suggest additional care in the selection of a wet nurse, so as to

[a] Klebs. Arch. f. exp. Path., 1873. I., p. 163.

avoid a consumptive one, and afford an additional reason why a phthisical mother should not nurse her own offspring, although apparently competent to do so.

This question of infection with tuberculosis through the digestive canal is of the greatest interest as bearing on the frequency of abdominal phthisis in early life. Leube,[a] in discussing the genesis of intestinal tuberculosis, quotes the words of Virchow, that "the predisposition to tuberculosis, the hereditary vulnerability, resides in the tissues, and the younger and more incompletely developed these are, the more readily will the vulnerability manifest itself in the presence of exciting causes." This theory, Leube thinks, may account for the special frequency of intestinal tuberculosis in childhood, a period during which the intestines are subjected to very numerous hurtful influences, and are particularly liable to be overtaxed by indigestible food, and their lymphatic apparatus irritated thereby. But another question, he adds, is of great importance, whether tuberculosis of the intestine may not be induced by the introduction of a tuberculous virus from sources external to the body. In reference to the very serious complication of intestinal ulceration in pulmonary phthisis, when the former has not been prior or simultaneous in origin, Klebs[b] has suggested that the ulcerations found in the intestines of consumptive patients might be explained by the swallowing of tuberculous sputa, that the swallowed sputa seem fully capable of exciting tuberculosis of the follicles of the small intestine, and that in this way additional infective material might be produced, which, being carried into the lower portions of the intestines, would account for the more marked affection in certain cases of the large intestine. Böllinger also has arrived at the same opinion as to the noxious influence of swallowed expectoration. In the animals fed with tuberculous matter, or with milk from phthisical cows, the lesions appear first, and are best marked in the lymphoid masses which form the solitary follicles of the intestine. This might be said to be the result of an unwholesome and irritating kind of food, but Chauveau does not accept this explanation, and asserts that he has a multitude of facts to prove that ordinary pus may be introduced into the digestive canal, even in considerable quantity, with impunity.[c]

[a] Leube. Ziem. Cycl. Pract. Med. 1877. Vol. VII., p. 409.
[b] Ziemssen. Op. cit.
[c] Br. and For. Med. Ch. Rev. Vol. LIV., p. 480.

The subject of the relationship, if not the identity, between scrofula and tubercle is one which lies at the root of the etiology of tuberculosis, and which has occupied the minds of all who are interested in the subject of phthisis. Scrofulosis and tuberculosis are held by many to be identical, by others to be different constitutional conditions. The more recent investigations have shown that there is no essential histological distinction between tuberculosis and scrofulosis of the lymph glands.[a] Rindfleisch[b] has convinced himself by repeated observations that Schüppel's assertion "that scrofulous glands are always tubercular glands," is correct. The greyish parenchyma of a scrofulous lymphatic gland, which has not yet become cheesy, is found studded with a considerable number of veritable submiliary tubercles, which may be aggregated in groups, or more uniformly disseminated. Rindfleisch expresses his regret that on the question of the tubercular nature of scrofulous glands he must dissent from his honoured master, Virchow, who considers the change in such glands to be an inflammatory one, with hyperplasia of cells, but without the presence of tubercles. The identity of tuberculosis and scrofulosis is further supported by the frequently simultaneous occurrence of tubercle and scrofula; the circumstance that scrofulous children so frequently become tuberculous, and the fact that scrofulous new formations resemble the tuberculous, not only of themselves, but also in their most frequent metamorphoses, which are cheesy transformation or simple atrophy.[c]

There are two great characteristics of the scrofulous, which are the very two factors in the genesis of tubercle which science has been slowly and laboriously working out. These two characteristics are—a tendency to chronic thick suppurations, and an irritability of the system of lymphatic glands. In any scrofulous person, whether he belong to the torpid or the fiery type of Canstatt, the easily-provoked inflammation runs its course slowly, leading with a (for the most part) slight hyperæmia to a common dry suppuration and ulceration, which obstinately endures, or, after a temporary healing, returns without demonstrable cause. Notable, also, is the readiness with which the lymphatic glands participate in the local irritation, and the length of time their suppuration, should they break down, outlasts the primary affection of the skin or mucous membrane which called it into existence. The cause of this obstinate

[a] Wagner. Man. Gen. Path. 1876. P. 458.
[b] Rindfleisch. Ziem. Cycl. Pract. Med. 1875. Vol. V., p. 641.
[c] Wagner. Man. Gen. Path. 1876. P. 459.

chronicity in scrofulous suppurations, and of the tardy disappearance, or the persistence of the resulting infiltration, has been accounted for in various ways. Virchow first called attention to the predominantly cellular character of the scrofulous exudation, to its hyperplastic nature, and to the low vitality of the cells which compose it. In addition to the abundant cell-formation, and the thick, quickly-drying character of the secretions, Rindfleisch[a] finds a great difference in the degree of cellular infiltration of the submucous connective tissue according to the scrofulous or non-scrofulous nature of the catarrh. In scrofulous cases there is an extensive infiltration with round cells extending deeply into the submucous tissue; until these cells have entirely disappeared, the mucous membrane is not restored to a perfectly normal condition. Many of these cells undergo a granular fatty degeneration; their molecular detritus is partly mingled with the lymph which flows from the affected part into the neighbouring lymphatic glands, and partly forms an element in the secretion, in which fine granules possessed of molecular movement are constantly found. The characteristic "sickliness" of scrofulous persons, which is especially manifested by easily-induced inflammations of the mucous membranes, habitually disturbs the lymphatic glands, either because the products of these inflammations contain something abnormal, or because the lymphatic glands in such constitutions are unusually irritable. The scrofulous inflammations are notable for their abundant proliferation of cells. In the lymphatic glands these cells are pressed together so compactly that they readily die; the glands become caseous and form infecting foci for tuberculosis. In parenchymatous inflammations the scrofulous element is marked by the tendency to permanent infiltration of the affected tissues, in which dense infiltration the blood-vessels become occluded, and then necrotic processes ensue. There are no proofs that scrofulous infiltration is capable of any changes but degenerative ones. This degeneration begins as a cheesy transformation—first, of the centre, then of the entire infiltration. After the cheesy degeneration may follow calcification or softening. The real relationship, according to Rindfleisch,[b] between scrofula and tuberculosis, is the elaboration of a poison from the cheesy infiltration, and from the suppuration of mucous membranes which, when absorbed, produces tubercles. The tubercular poison, in most cases, is thus manufactured by the patient himself. There is—first,

[a] Rindfleisch. Ziem. Cycl. Pract. Med., 1875. Vol. V., p. 637.
[b] Rindfleisch. Ziem. Cycl. Pract. Med. 1875. Vol. V., pp 637-639.

scrofula and then a cachexia from the absorption of scrofulous products. The intensity of this cachexia is only partially revealed by the formation of miliary tubercles. He believes that the reason why the scrofulous catarrh of children is not always followed by tuberculosis is, that in young persons there is a marked tendency to active congestion, and that by this active congestion a supply of nutritive material is afforded which keeps the lymphatics open, and leads to the formation of healthy granulation tissue.

Concerning the process of caseation, which seems to be so intimately connected with the elaboration of the infective agent in tuberculosis, there are some points of great interest. The word caseous was first used by Mangetus[a] in 1700. Portal substituted the word tuberculous for it, and, owing to Laennec's influence, the latter word was used for the first half of the present century. Cragie's proposal of the word tyrosis, from τυρὸς, cheese, to signify the caseous nature of certain accumulations without any reference to their origin or causes, hardly attracted any notice at the time. In 1852 Virchow revived the old word, suggesting that the change which may occur in tubercle, in ordinary exudation matter, in typhous matter, in carcinoma, and in other pathological products, should be denoted by the term caseation, and the result termed caseous or cheesy matter. The agency whereby the caseous change is effected in a given product appears to be of a chemical rather than of a mechanical nature—that is to say, it is not due to mere pressure. The most intense exudation in acute pneumonia does not produce it, nor is it a result of pressure under other circumstances.[b] There appears to be an absorption of water, and a drying-up of the fluid parts of the exudation in addition to chemical metamorphoses which are unknown, unless it be sufficient to speak of them as a granulo-fatty degradation. It has been assumed that when the cheesy substance remains in a condition of almost absolute dryness, at a temperature of from 99° to 102·5° Fahr., there takes place a sort of digestion of the albuminates, such as has been described in Eichvald's studies on the colloid substance of ovarian cysts. When these albuminous substances have become soluble, they absorb from the surrounding tissue sufficient water for them to become fluid. This fluid contains the granular detritus which has not been dissolved, and thus looks like pus.[c] An unusual condition of dryness in the

[a] Mangetus. Theop. Bonneti Sepulchretum. 1700. Lépine. De la Pneumonie Caséeuse. 1872. P. 4.

[b] W. Fox. Trans. Path. Soc., Lond. 1873. Vol. XXIV., p. 382.

[c] Rindfleisch. Ziem. Cycl. Pract. Med. Vol. V., p. 652.

surroundings of a pulmonary exudation seems to be a very efficient cause in promoting caseation. Engel[a] believes that caseation is essentially produced by abstraction of the watery parts of pus, and remarks that rabbits, who are notoriously liable to this form of degeneration, very seldom drink water, and take little or no liquid food, their urine is highly saturated, and their excrement very hard and dry. Waldenburg suggests that the frequency of caseation in the lungs may be, perhaps, due to a relatively small amount of blood in the pulmonary vessels, and a consequent "dryness" of the pulmonary tissue. Bearing on this point are the rarity of caseation as a result of ordinary acute pneumonia, except in persons who have long been suffering from emphysema. Rokitansky[b] has remarked upon the pre-eminent immunity afforded by venosity and cyanosis against fibrin crases, and most particularly against the tuberculous crasis. Traube has more recently interpreted this to mean that those diseases of the heart and great vessels protect from phthisis, which hinder the outflow of blood from the pulmonary veins, and consequently promote an excessive amount of moisture in the lungs. As bearing out these views, the frequency of congenital stenosis of the pulmonary artery, in cases of tuberculosis, free from all history of inherited disposition, is a very remarkable fact. Lebert,[c] in a most suggestive paper on the influence of pulmonary stenosis on tuberculosis, concludes, from twenty-one cases of the kind which he had himself collected, that the principal element in the production of tubercular deposits in such cases is the mechanical impediment to the pulmonary circulation, caused by the irregular distribution of blood. The immunity enjoyed by those who suffer from chronic bronchitis, the frequency with which phthisis follows pleuritic compression, the rarity of phthisis in mountainous countries, and in persons whose chests have been thoroughly expanded, point in the same direction. Everything which promotes the inspissation of secretions accumulated in the alveoli and bronchioles facilitates caseation. In scrofulosis and in tuberculosis, whether they are pathologically identical or only related as cause and effect (either of which are very defensible views), there are conditions which, in each alike, promote inspissation. Assuming, for sake of argument, that scrofulosis is independent of tubercular formation, the essentially thick, highly cellular exudation is not,

[a] Br. and For. Med. Ch. Rev. 1870. Vol. XLV., p. 400.
[b] Rokitansky. Path. Anat. Syd. Soc. Vol. I., p. 380.
[c] Lebert. Med. Times and Gaz. 11 Dec., 1869. P. 677.

from its nature, readily capable of absorption, independently of the pressure its presence exercises on the vessels which could otherwise effect its removal. In tuberculosis (pulmonary) the absorption of the *intra*-alveolar accumulations is hampered by the occupation of the inter-alveolar lymphatic rootlets, and the capillary vessels by tubercular growths—so that, in either case, caseation is of frequent occurrence. In reference to scrofula, Rindfleisch[a] regards one fundamental ingredient of that constitutional anomaly to be a disproportion, during the development of the individual, between the volume of blood and the weight of the body. Even in the local affections of scrofulous persons there is always a disproportion between the inflamed parenchyma and the amount of proper congestion of the vessels. Therefore the best treatment for scrofula he holds to be to increase the volume of the blood, and the best treatment of a scrofulous infiltration is to produce a moderate local hyperæmia. This may be the key to the successful treatment of certain cases of phthisis by alcohol, used, not moderately or sparingly, but freely—that is, from six ounces to a pint of spirits daily.[b]

The usual commencement of phthisis, or chronic tuberculosis, is with a neglected cold. In many it is the irritating cough remaining after an attack of catarrhal bronchitis which first attracts attention. "At this time," Rindfleisch[c] says, "the anatomist will probably find a combination of two conditions—a circumscribed catarrh of the small bronchi at the apex, and an eruption of miliary tubercles in the acini belonging to these bronchi." He has never seen a circumscribed catarrh of the small bronchi without an initial tubercle granulum, nor an initial tubercle granulum without some bronchial catarrh. The place where he finds the first tubercular lesion is in the angles and projections situated at the points where the smallest bronchioles become continuous with the acini. He believes that in the catarrhal secretions of a scrofulous person is contained the tubercular poison which becomes inoculated in the edges and corners of the narrowest portions of the bronchi, and produces the tubercular infiltrations of the connective tissue angles at the points where the bronchioles become continuous with the acini. These facts are interpreted by others, and with what amount of probability was seen in the last lecture, as evidences of an irritation and overgrowth of the lymphoid or adenoid structures which

[a] Rindfleisch, Ziem. Cycl. Pract. Med. 1875. Vol. V., p. 646.
[b] See Flint, Phthisis. 1875. P. 374.
[c] Rindfleisch, Ziem. Cycl. Pract. Med. Vol. V., p. 648.

abound in these situations. The explanation of why it is the tubercular process usually begins in the apices of the lungs appears to lie in this, that the catarrhal secretions of scrofulous persons are less easily removed from the apices than from other parts of the lungs, and, therefore, by remaining there have more time to inoculate the surrounding lymphatics or to caseate; and, secondarily, by the results of caseation, to lead to a more or less extensive tuberculosis. A variety of conditions generally concur to weaken the expiratory power of the apices, in those who usually fall victims to phthisis, and many of these are concerned with a faulty conformation of the skeleton. Freund[a] has alluded to the effect of congenital shortening of the first rib or precocious ossification of its cartilage on one or both sides. These anomalies influence the further development of the chest and affect its expansion in respiration. He states that in cases of recovery from disease of the apex, the hindrance to respiration has been frequently found to have been remedied by a fracture and the formation of a false joint, by which the necessary mobility of the first rib in inspiration has been restored. Again, in the feeble persons most disposed to phthisis, the weight of the arms, in the ordinary upright position of the body, depends forwards from the upper part of the chest, and must restrict the respiratory movements there. This faulty carriage is very much due, in turn, to the small vertebro-sternal diameter of their shallow and flattened chest, indicated by the strongly-marked angulus Ludovici formed at the insertion of the second ribs by the manubrium sterni which is bent backwards, indicated also by the projecting scapulæ, and by the very prominent clavicles. The pathological appearance is still further marked by the long, attenuated shape of the neck, the depressed and rounded shoulders in front, the head stooped forward, and the spine sunk so as to be slightly convex backwards. The movability of the thorax being interfered with in these ways, the main burden of respiration is thrown on the diaphragm; but although the diaphragm is the principal source of compensating action when the respiratory movements in other parts are insufficient, its compensating action is limited in amount. The lung is not freely movable throughout its entire extent, being fixed at the point of entrance of the bronchi and blood-vessels; as a result of this, the apices of the lungs situated above these fixed points can only feel the compensating action of the diaphragm to a small extent. As

[a] Ziemssen. Cycl. Pract. Med. Vol. V., p. 485.

to the lung itself, the numerous colds to which the vulnerability of the sickly subjects of scrofula makes them liable, and which have been gradually leading up to and preparing the way for the final catastrophe, have probably already capped the summits of the lungs, with the adhesions so frequently found thereabouts. But even if the apices should not be fettered with adhesions, there is probably still another cause in the peculiar position of these parts. The apices project from three to four centimetres above the clavicles, and this projecting portion being situated outside the chest, is subjected to the pressure of the external air. The supra-clavicular region sinks in during deep inspiration, and consequently the inspiratory expansion of the apices is less than that of other parts of the lungs. On the other hand, forcible expirations drive the air into these parts, and so when there is an imperfect expansibility of the upper part of the chest everything which has been discharged from the alveoli into the bronchioles of this region, or which has otherwise made its way hither, has less prospect of escape, and more of retention, decay, and decomposition.[a] Waldenburg's recent experiments in pneumatometry have shown that in phthisis, as might have been expected, both the inspiratory and expiratory pressure are below the normal. Add to this the tenacity of the thick cellular secretions of the scrofulous. The more freely the respiratory movements are made, and the more a sufficient hyperæmia is present to mix the cellular proliferation with serum, the more easily is expectoration accomplished from the lungs. It is believed that paucity of blood is one of the most important factors in scrofula, and according to Virchow the thickness of a catarrhal secretion, especially of the bronchi, is in inverse relation to the amount of blood in the part.

The considerations just mentioned tend to show that the apices are, from a combination of causes, unfavourably circumstanced, as compared with other portions of the lungs, for the dislodging of catarrhal secretions, which, in certain constitutions, are more than usually tenacious, and appear, moreover, to be capable of exciting tissue irritation by their prolonged sojourn in the parts.

I had proposed to myself in these lectures to consider also the subjects of the pathological evidence of the curability or indefinite prolongation of tuberculosis; the elimination of phosphates in the expectoration and urine of the tuberculous, and its bearing upon the administration of cod liver oil; and the cause and significance of

[a] Ziemssen. Cycl. Pract. Med. Vol. V., p. 487.

the initial hæmoptysis; but the time is quite inadequate for me to do so. In indicating the probabilities of a contagious element in tuberculosis, I have referred to a belief originally of great antiquity, but of such rapid growth in recent times as to seem likely soon to assume a very definite shape. There are at present the contagionists, the non-contagionists, and those who hold a middle view. The first regard tuberculosis as a virulent disease, comparable with glanders; the second say it is not contagious; the third admit that it is transmissible by its products, but that it can also be developed by the inoculation of other substances.[a]

The belief in the alliance between scrofula and tuberculosis is also of great antiquity, and it is satisfactory to find that modern researches appear rather to cement their connexion with histological evidence than to dissever them. Most of the causes of scrofula are tolerably known, and are of such a nature that the efforts to remove them are such as benefit society at large, as well as individuals. Bad hygiene is the foster-parent of scrofula: it can nurse, and develop, and force the germs of scrofula to a degree of perfection they seldom attain without the assistance of this powerful auxiliary. But bad food, bad air, bad light, and damp, and cold, and want may all be absent, as in the case of members of the better classes—better, at all events, in this instance, in these respects—and then the constitutional anomaly in the sickly frame may be the bequest of ill-assorted marriages, marriages of disparity, consanguinity, or at the extremes of life, or it may be the legacy promised in the second commandment, inherited from profligacy, intemperance, or the system of artificial habits which the exigencies of fashion rigorously insist upon, to be again entailed with compound interest upon a future generation. The great danger in scrofula lies in the probability of the supervention of tuberculosis; and the question of the prophylaxis of tuberculosis, not to speak of its eradication, is involved in the prophylaxis of scrofula, and of the causes which promote the acquisition and propagation of the scrofulous diathesis. If we could weed the world of scrofula we should not have any great trouble from phthisis, to which, at present, two-sevenths of all deaths are attributable. There is not much likelihood of a return to the summary method adopted by Lycurgus to stamp out such diseases—that of exposing all fragile and puny children to the bears and wolves on Mount Taÿgetus, as being likely to prove only a burden

[a] Daremberg. De l'Expect. dans la Phthisie pulm. 1876. p. 61.

to the State, and neither capable of bearing arms nor of propagating useful citizens. But it is not improbable that a time will come when the immense annual loss of life from tuberculosis will occupy the serious attention of all civilised governments. Great efforts are made by the State for the prophylaxis of syphilis, but prophylactic efforts against tuberculosis would throw an ægis round the moral as well as the immoral. For along with the dissolute and the destitute, tuberculosis claims its victims from among the fairest and the best, and cuts short lives, like that of Laennec, which are as useful as they are pure. There can be little doubt that the cultivation of a healthy public opinion on the vital importance of the proper construction of houses; of correct principles of ventilation, heating, and drainage; of the danger of overcrowding; the daily duration of labour; the advantages of cleanliness; the supervision of food; and the prevention of intemperance, will, by gradually securing an improvement in the shelter, air, food, drink, comfort, cleanliness, and rest of the poorer classes, tend by degrees to effect their moral and physical amelioration, and thereby eliminate or abate the causes of scrofula to such a degree as to strike a decided blow at the very roots of tuberculosis.

The doctrines of the inflammatory origin of tubercle, of its connexion with lymphatic tissue, of its infectious nature, and of its identity or intimate relationship with scrofula, have been severally promulgated, more or less, from the earliest times; none of them are absolutely new. One of the reasons why these views do not seem, any or all of them, to have been till very recently recognised as they appear to deserve, may be due to the want of sufficient evidence that they were well founded. They seem to have first appeared like flashes of inspiration in the darker ages of pathology—to have emanated from minds which possessed the power of thinking out very far beyond the range of facts. Another cause which has delayed their acceptance has been the tendency to push one or more of them to an extreme degree, and the responsibility for this seems to lie at the door of the disciples, rather than of the masters. Round the subject of tuberculosis belief in the four doctrines above mentioned has been long revolving as in ellipses—sometimes approaching, sometimes receding from acceptance. The difficulties which surround the study of tuberculosis are, in many respects, similar to those which surround the study of cancer and syphilis—three questions which at present greatly exercise the pathological mind, and are objects of investi-

gation among all the pioneers of medical advance. It will possibly be long before the subject of tuberculosis will be fully understood; meanwhile it is well to take advantage of the glimpses at its nature which are, from time to time, revealed in the slow advance of honest and disinterested scientific work.

ART. VI.—*Two Cases of Abscess of the Liver.* A Thesis read for the Degree of Doctor of Medicine, Univ. Dubl. By JAMES J. MORAN.

THE following two cases of abscess of the liver have come under my observation; they presented, to a certain degree, most of the recognised symptoms of the disease:—

CASE I.—Mrs. S., aged twenty-eight years, married four years. Since the time of her marriage she has been living in India. Whilst there she suffered from repeated attacks of intermittent fever, and two years ago she had an attack of acute dysentery. She recovered perfectly from it in two months, and has not since been troubled with any of its symptoms. She had two miscarriages. The first about a year ago; that was probably due to horse-exercise. The second occurred about a week before I saw her, as she was making a passage through the Bay of Bengal. The sea was very rough, and she was troubled with sea-sickness. She thinks the vomiting and straining induced it. When I saw her she appeared exhausted; her lips were blanched. I was told by the physician who attended her she had lost a large quantity of blood at the time of her miscarriage. Pulse 120, very weak, and respiration 30. I had her laid in bed, and gave her a tablespoonful of brandy with spt. amm aromat, ℥. xx. Before I adjusted her binder, I made an examination of the abdomen. The uterus was well contracted; there was general slight tenderness over the abdomen. With stimulants and rest in bed she soon revived. She said she was perfectly well when she left home about a week before. Treatment—amm. and bark mixture, beef-tea, milk, and a tablespoonful of brandy every fourth hour.

Oct. 3rd, morning.—Slept fairly through the night; a small external pile gave her much uneasiness, and her bowels had not been moved for three days; ordered a soap-and-water enema. She complained of a dislike for brandy; it was changed to port wine. Evening.—She was much relieved since the enema, and slept a little during the day.

Oct. 4th.—She complained of nausea and a distaste for food, particularly beef-tea. On examination, I found the heart and lungs healthy, and the liver normal in size. There was great rigidity of the muscles in

the epigastric region. On pressure she had increased nausea and inclination to vomit; she had no pain in the right shoulder. Ordered—acid. nit. mur. dil., ♏. x.; liq. taraxaci, ♏. xx.; inf. chiratæ, ad. ʒj.; to be repeated every sixth hour; milk and port wine; stop the other mixture. Evening.—Complained very much of weakness and general prostration. Temperature 99·2°; pulse 92.

Oct. 5th, morning.—Slept well during the night, but still very weak and pale; she appeared to be rapidly losing flesh. Temperature 99·8°; pulse 96. Evening.—Temperature 101·2°; pulse 99. She complained of thirst. Sucking ice gave her most relief. She had no pain except the nauseating sensation that was increased by pressure in the epigastric region.

Oct. 6th, morning.—Last night she got an apparent attack of puerperal mania. She awoke from sleep with a scream, and ran to her room door. She offered a great deal of resistance to the nurse, who tried to get her back to bed. When I saw her she was staring wildly about her and from time to time screaming and uttering threats to some one she imagined was near and about to injure her. I made her inhale a little chloroform from a towel. The effects of the chloroform were only temporary; she commenced screaming in twenty minutes afterwards more violently than before. I quieted her by repeating the chloroform, and then succeeded in making her take 20 grains of chloral hydrate. This morning she is quite calm and collected. She has no recollection of anything having taken place during the night. Pulse 96, very weak and compressible; temperature 100·6°. As she was losing flesh and strength fast, I asked an Indian medical officer of large experience to see her with me. He thought it was probable that the heat of the weather (88° in the shade) might be the cause of her not recovering strength after the loss of blood. The anæmia might induce the irritability of the stomach. Ordered—ammonia and bark mixture, milk and beef-tea, port wine. She had one motion.

Oct. 7.—Still very weak. Sleeps for short periods at a time during the day and night. Treatment as yesterday.

Oct. 8.—She was attacked with diarrhœa during the night which continues to-day. Her stools are green, soft, pulpy consistence, slightly tinged with blood. Ordered—tr. opii., ♏. x.; ol. ricin. ʒiv., ♏. It remained on her stomach. During the day she had an enema of starch and opium. Evening.—She is lying unconsciously on her back and passes her stools involuntary. She is almost pulseless, the sounds of the heart are indistinct and the extremities cold. She takes teaspoonfuls of brandy and egg mixture. She died at 10 p.m.

Post mortem.—Upper surface of body was pale; extensive hypostatic congestion on dependent parts. The thorax presented the ordinary signs of anæmia. On opening the abdomen the liver was found to be congested,

and on the posterior surface of the left lobe an abscess was found to have burst into the peritoneal cavity. It discharged apparently about 3 ounces of pus. The colon was extensively ulcerated.

Case II.—R. N., aged thirty-five, an employé of a telegraph company, had been stationed in China and at Hong Kong for two years. He enjoyed good health till eight months before I saw him. During the hot weather he was sleeping in his verandah with very little covering; after, he suffered from repeated attacks of shivering, and his liver swelled and became painful. He remained in bed for a week, till the febrile symptoms had partly subsided. He never perfectly recovered, and, for the last two months, he is becoming gradually weaker and weaker. He had general hectic symptoms—viz., had become cachectic and excessively emaciated, and was troubled with night-sweats. He had occasional attacks of diarrhœa, and his breathing was short. There was a swelling in the right hypochondriac region, and he felt constant dull pain and weight. The urine was loaded with urates. On examination I found a large elastic tumour in the right hypochondriac region; it extended from about two inches below the nipple to midway between the lower margin of the thorax and the crest of the ilium. The ribs were pushed forward. At the lower part of the tumour a free border could be felt. Fluctuation was detected on palpation at the middle of the tumour. The spleen was found to be enlarged. The next day I satisfied myself that it was a case of hepatic abscess of the right lobe. I drew off with the aspirator about a pint of thick grumous pus; I had every reason to believe there was much more in the sac of the abscess. I stopped, as he showed signs of great weakness. After the operation there was a bandage applied round the abdomen, sufficient to keep up gentle pressure. When he recovered from the weakness, he said he was much relieved from the sense of weight; he felt "lighter," and his breathing was freer. During the following three days he kept much more comfortable than before, and slept better. After that there were signs of the abscess re-filling. Ordered, mineral acids and inf. chiratæ., beef-tea, milk, and port wine.

Ten days after the first operation it was repeated, giving him again marked relief. His constitutional symptoms were so urgent he was sent for a sea voyage to Australia. He lived only two months after.

No *post mortem* examination was made.

The circumstances of the first case tended most to render it obscure. The important symptoms were—rigidity of the muscles of the abdomen, and the constant tendency to nausea and vomiting, increased by pressure. Though rigidity of the abdominal muscles has been observed in pyloric cancer and other affections, it appears to me to be a most valuable aid, in cases of deep-seated abscess, to

the final diagnosis in connexion with other symptoms. The marked irritability of the stomach, in the case of the abscess of the concave surface, showed a kind of sympathy existed. The second case was much easier of diagnosis—there was neither the rigidity of the abdominal muscles nor marked nausea. Here swelling in the right hypochondrium, dull pain, sense of weight, deposits in the urine, hectic condition, and finding fluctuation, were the signs. The use of the aspirator in those cases gives very little pain; it may cause the liver to form adhesions to the abdominal wall. The contents of the abscess being drawn off the sac may commence a healing process. Often it is impossible to empty the sac on account of the thick consistence of the pus; in those cases what remains will have increased chance of being inspissated and incapsulated. It gives the patient marked relief from various troublesome symptoms.

METALLOTHERAPY.

MM. Charcot, Luys, and Dumontpallier, who were appointed to investigate the statements of M. Burg, on the curative properties of metals, have sent in their report. The facts which he alleged, and which hitherto had been received with suspicion, have been confirmed. In cases of hysterical hemianæsthesia, if pieces of gold, copper, or zinc are applied to the skin of the affected part, the patients immediately complain of prickling sensations, of a feeling of heat, and at the end of a few minutes the observer sees a return of sensibility, and elevation of temperature, and an increase of power. Near the place where the metal is applied different degrees of sensibility are noticeable. Special sensibility also is affected in the same way; thus Daltonism disappeared and deafness was markedly diminished. These remarkable phenomena are not produced by the same metal in the case of all individuals. Some are affected only by gold, others by zinc, &c. The most curious feature is that in some cases of hemianæsthesia, from organic causes, the effects of applying metals were more lasting than in the hysterical. It is probable that this action of metal is due to electric currents developed by it on the skin, as in one case a return of sensibility resulted when an electric current was employed of the same strength as that induced by the application of pieces of gold. A strange fact of possible importance in physiology was observed—viz., that in proportion as the sensibility, general or special, returned, that the temperature rose, and that the muscular strength increased, there could be observed, at the corresponding part of the healthy side, a loss of sensibility, heat, and muscular strength.—*Gazette Médicale.*

S. W.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

On Stethometry: being some Account of a New and more Exact Method of Measuring and Examining the Chest, with some of its Results in Physiology and Practical Medicine. Also, an Appendix on the Chemical and Microscopical Examination of Respired Air. By Arthur Ransome, M.D., M.A. (Cantab); Lecturer on Public Health in Queen's College, Manchester. Illustrated. Macmillan and Co. 1876.

The chief feature which characterises the methods by which physiology, pathology, and practical medicine have advanced during the present century is by the application of instruments of precision in physical research which were quite unknown to our forefathers. Although attempts were long since made at accurate estimations of pulse, temperature, respiratory sounds, the capacity and motions of the chest, movements of the heart, susceptibility of the surface of the body, and contractility of muscles, yet all such estimates wanted that accuracy which is now considered essential to scientific records; and it is only since scientific instruments such as the microscope, clinical thermometer, sphygmograph, spirometer, &c., have been more commonly used by practical physiologists and physicians that medicine has assumed more of the position of a science and less of an art than it previously possessed. Dr. Ransome, of Manchester, who has so long been known as a scientific physician and hygienist, in the work before us brings several new and accurate methods of research under the notice of physicians and physiologists. Dr. Ransome appropriately dedicates his work to Dr. Stokes as "one of the first to introduce exact methods of measurement into the study of diseases of the chest." No one more than Dr. Stokes has admired the advances practical medicine has made by "exact methods;" and he did not scruple but a few years ago to rebuke the Dublin School of Medicine for its neglect of these methods. (See *Dublin Medical Journal*, February, 1871.)

Dr. Ransome does not wish in the least to undervalue other methods of research, and remarks:—

"For all these purposes [the investigations of the various conditions of respirations, &c.] exact instruments of measurement are absolutely necessary. Without in any degree undervaluing the power of the 'experienced eye' or of the 'practised hand' for the detection, and even for appreciation of the extent of most diseases, yet, even when aided by the well-trained ear, they fail to meet all our requirements."

The author considers the present method of chest-mapping by natural prominences and lines: "For various important objects it is probable that this is the only readily applicable method; it is difficult to see what other means could be substituted for it when the observation is to apply a rule that shall fit various individuals;" but when the "intention is to localise the parts in the same individual under different circumstances, however, as in the ordinary clinical noting of disease, there are serious objections to this plan." This is a difficulty which every clinical recorder must have felt; and Dr. Ransome quotes several authorities—among others Dr. Sibson—to establish the truth of his statement. With a view of meeting these difficulties, Dr. Ransome has introduced what he terms "the chest rule," which is used in conjunction with an outline figure, drawn by the aid of Dr. Fairbank's stencil plate. The chest rule "consists of thin, narrow spring steel, so arranged as to form a parallelogram six inches long by three in width, and divided into eighteen squares of one inch length of side." We have obtained and used one of these rules, and find it extremely useful. One of its most useful applications is illustrated by a case where the conditions, divided and mapped during life, were afterwards mapped at the *post mortem* examination, and the result compared with the conditions previously described. In using the chest rule for estimating variations in the size and position of the heart, the following important warning is given by the author:—

"It is important to notice what emphasis these measurements give to the caution, that in all observations upon the heart's impulse in cardiac disease, care should always be taken to place the patient in the same posture at each observation, otherwise most serious errors might easily be made."

Dr. Ransome reviews the various important results which have from time to time been achieved by the various methods of chest measurement, quoting Woiller, Walshe, Bunt, Wintrich, Quetelet,

&c. He then considers the results obtained by the study of the movements of the chest, and considers carefully the order in which these movements occur. He gives as the results of two series of experiments conducted by himself, that expansile movements of the chest commence below and proceed upwards, thus disagreeing with Haller, Sibson, Hutchinson, Humphrey, and Walshe, who consider that the movements commence superiorly—and Magendie, who considers that all the ribs move simultaneously. The author, however, admits that in females there are exceptions to the rule. The experiments in proof of the above view were made in two ways—first, by fastening straps of paper around the chest and observing the order in which they were broken; second, by the aid of Dr. Burdon Sanderson's stetho-cardiograph. With a view of fully investigating the various movements of the chest walls, Dr. Ransome has devised his three-plane stethometer. It is impossible without diagrams to describe this ingenious instrument. The three-plane stethometer registers on dials the forward, upward and outward movements of the chest-wall at any point to which the instrument is applied, the figures thus registered can be transferred to graduated sheets of paper (similar to those now used as thermometric charts), and thus the relative amount of each motive may be demonstrated by the graphic method. The results obtained by this method show that the different regions of the chest wall move as follows:—

"*The Sternum* moves forward, and sometimes upward, more freely than the clavicles, and the motions of the lower portions of the bone are greater than those of its upper end, but not as great as might be expected, owing to the restraining power of the lower ribs, which in their turn are influenced by the diaphragm. The sternum has also lateral motions during respiration, these motions being proportional to inequalities of the two sides of the chest."

"*The Clavicles* show more upward than forward movement, and they are especially affected by the final effort of breathing, when the extraordinary muscles attached to them are brought into action. There is little or no outward motion of any point on these bones, or on the first and second ribs in the anterior regions of the chest, but on the third this motion is already distinct, and it increases in amount as we descend to the lower ribs."

"*The Ribs*, at their anterior ends, generally move more decidedly upwards than the sternum, owing perhaps to their power of outward rotation, which permits them to rise more freely. Their forward push is also very considerable, especially in the lower ribs, the fifth and seventh; and in

some cases even the second and third ribs enjoy more movement than the sternum."

The influence of sex, age, and muscular power are considered in modifying healthy, and the various pathological conditions as modifying abnormal, respiratory movements, as shown by the three-plane stethometer. With a view of estimating the angular movements of the ribs, Dr. Ransome employs a specially constructed geniometer and special modification of an ordinary calipers, for estimating the direct thrust of any portion of the chest-walls.

The exact course described by the end of each rib is traced by another instrument of Dr. Ransome's invention, termed the stethograph. We cannot do any justice to the results obtained by this instrument without reproducing Dr. Ransome's very elegant diagrams, and we must refer our readers to the original work, where they will learn more of the astonishing results obtained by the aid of recording instruments.

We regret space does not permit us to notice further Dr. Ransome's valuable work, which is alike a credit to himself, his publishers, and the great school of medicine of Manchester.

T. W. Grimshaw.

A Handy-book of Forensic Medicine and Toxicology. By W. Bathurst Woodman, M.D., F.R.C.P., and Charles Meymott Tidy, M.B., F.C.S. Pp. 1,205. London: J. and A. Churchill.

It is not easy to discover why authors of bulky books will persist in calling them manuals, and the modest title of Handy-book given to the present work is, from a physical point of view, singularly inappropriate. It contains upwards of 1,200 pages, besides 8 chromo-lithographic plates, and in every respect is a full and complete treatise upon the subjects of its title. The authors evidently do not intend their production to supersede or even rival that of Taylor. Although their study is legal medicine, they have dealt with the medical rather than the legal aspect of it. We think they are fully justified in so doing. When the medical practitioner is placed in the witness-box he is not required to know what are the statutes against which a prisoner may have committed an offence, nor is he required to estimate probabilities of guilt or innocence; as a matter of fact the rock upon which medical evidence is most

liable to shipwreck is the assumption of legal opinion on the part of the witness, and the desire, sometimess ill-concealed, to make the facts of the case tally with the side he has taken. The introductory chapter contains some excellent advice as to the demeanour of the medical witness in court. There is little use in giving cautions against flippancy or preternatural gravity of manner. The folly which stands in need of such counsel would be incapable of taking it, but the thoroughness of knowledge which the writers insist upon as necessary to the witness cannot be too highly commended. The second chapter is occupied with directions for making a *post mortem* examination. These are given chiefly with the view of ascertaining whether there are or are not lesions due to direct violence; the viscera of the chest or abdomen are too briefly treated of. It would not be amiss, in a subsequent edition, to indicate the investigation a practitioner should pursue if seeking the cause of death when there is a probability that it was the result of natural causes. We allude especially to the diagnosis of *ante* and *post mortem* clots in the heart, the efficiency of its valves, the capability of the lungs for carrying on respiration, and the more common pathological conditions of vital organs. In the third chapter, on "Signs of Death," the information is full and well arranged. Rigor mortis is carefully distinguished from the rigidity of tetanus, catalepsy, and hysteria. The next fifteen chapters are devoted to toxicology, and few readers will disagree with us in the opinion that they form the most valuable portion of the book. After an elaborate detail of the circumstances that should lead to a suspicion of poisoning, and after giving a general account of the symptons during life and the *post mortem* appearances that should be investigated, a chapter is devoted to the manner in which the systematic chemical analysis of the contents of a stomach should be conducted. The investigator is, however, wisely forewarned of the numerous difficulties he must be prepared to encounter at every turn. Seeing that a human life may depend on the results to be obtained, it would be better in all cases for the practitioner to refer all such analyses to an expert whose chemical knowledge and manipulative skill would exclude all danger of mistake. The classification of poisons adopted by the authors is more simple if less scientific than that of Foderé or Christison. They are divided into four groups—mineral, vegetable, animal, and gaseous. The first poison considered is phosphorus, and the account of the symptoms and the synopsis of cases recorded are more exhaustive than we have seen anywhere on the subject.

It might almost be objected that some of the metalloids and metals receive a share of attention which their rarity does not require. But the mention of fluorine is not superfluous, as the tetra-fluoride of silicon evolved in the manufacture of superphosphates is a penetrating and acrid vapour that would, if let loose in the atmosphere, prove a nuisance seriously detrimental to the health of a neighbourhood. One hundred and twenty pages are occupied with metallic poisons; antimony, arsenic, copper, lead, and mercury form the most important of the group. A very excellent feature of the book, which we may *en passant* notice, is that in a footnote after each poison there is a list of cases in which the poison was proved to have been administered. The chapter on Animal Poisons is hardly as good as those on the remaining groups, especially in its notice of poisonous and unsound food. Messrs. Woodman and Tidy adopt M. Vanden Corput's view of the sausage poison. They believe that its action is due to the presence of a minute fungus (sarcina botulina), a theory borne out not merely by the fact that a well-marked mouldiness has been noticed in the sausages, but likewise that they have been found to act injuriously about April, when such cryptogamic organisms are specially developed. The examination of hairs and stains, in the nineteenth chapter, is deserving of unqualified praise; there are numerous engravings representing the microscopic appearances of the hair of animals, and plants most commonly met with, and the spectroscopic test is described clearly as well as concisely. The chromo-lithographs of blood-spectra are beautifully executed.

After a chapter on expectation of life and insurance statistics, pregnancy and sexual offences are discussed for about 200 pages; and if the writers have on these topics brought forward nothing very new, they have, at least, made a fairly methodical compilation. The section on Insanity fails, as every other attempt on the subject has failed, to point out any boundary line between mental disease and health. The authors are fully aware of this, and they adduce six reasons for the very poor figure which medical men so often make in the witness-box when cross-examined as to a patient's sanity. Two of these reasons they very frankly state to be the defective preliminary education of the average practitioner, which unfits him for taking a broad and comprehensive view of the case, and, on the other hand, the pedantic hair-splitting of specialists, which leads them into transcendentalism. The rest of the book treats of mechanical injuries and wounds. The reader will find

this portion as interesting as a novel. The cases selected are carefully detailed, and every point is illustrated by some interesting narrative. He will be surprised to find that several of the incidents mentioned are occurrences dating only a few months back. The Wainwright murder, the alleged suicide of the ex-Sultan Abdul Aziz (which, by the way, the writers believe to have been an instance of assassination), the Pimlico murder, which happened in February of the present year, are all pressed into the service of illustration.

In conclusion, we have no hesitation in pronouncing the work to be one of unusual merit. More readable than Taylor, more systematic in its arrangement, and more practical in its instruction, it will prove to the medical jurist, not less than to the general practitioner, a storehouse of useful knowledge, conveyed in an unusually graphic style. The premature and sudden death of one of its gifted authors—Dr. Bathurst Woodman—will invest the perusal of this volume with a melancholy interest.

Precis d'Opérations de Chirurgie. Par Dr. J. Chauvel, Médecin-Major, Professeur Agrégé de Médecine Opératoire à l'École du Val-de-Grâce. Pp. 692. Paris: J. B. Baillière et fils.

Setting out with the desire to fulfil the promises conveyed by the motto of his book, *être utile*, the author has done much towards success. The text represents mainly the course followed by Professor Maurice Perrin, at Val-de-Grâce, and is as full of various information as we should wish any text book to be. The methods described are almost entirely French, but there are occasional references to the recommendations of such leaders as Cooper, Abernethy, Mott, Syme, and Langenbeck. The descriptions are sufficiently detailed, and are aided by nearly three hundred engravings.

Bulletin de l'Académie de Médecine. Pp. 1,184.

As a record of the proceedings of the Medical Academy of Paris, this Bulletin is exactly the opposite of the summarised epitomes to which we apply the term. It gives not merely a *résumé* of the papers read before the Society, but also the discussions and remarks of the members present. The report is very full, and contains several papers of interest; but as the indexing is very deficient, and as the routine business occupies a considerable portion of the work, it will be more useful to the year-book makers for reference than to the profession at large.

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PART III.

HALF-YEARLY REPORTS.

REPORT ON SURGERY.

By William Thomson, M.D., Fellow and Member of the Surgical Court of Examiners, Royal College of Surgeons, Ireland; Surgeon to the Richmond Hospital.

LIGATURE OF THE CAROTID AND THE SUBCLAVIAN ARTERIES FOR ANEURISM OF THE INNOMINATE.

Dr. Johnson Eliot, of Georgetown, U.S., reports a case of ligature of the subclavian and the carotid arteries for aneurism of the innominate artery. The tumour had first been noticed about three years ago, but it was very slow in its growth, and only took on rapid increase a few months before it was seen by Dr. Eliot. He was in great pain and distress, and begged for some relief. It was proposed to treat him for six weeks with dry nutritious diet, and bromide of potassium, and then to operate; but, his condition becoming rapidly worse, surgical interference could not be delayed. The day after the operation ice was applied to the tumour for 15 minutes at a time, and the pulsation was diminished. Five days afterwards the tumour was declared to be more solid, and the patient was allowed to sit up for a short time. Later on, some blebs formed on the tumour, and were followed by ulceration. The patient became restless, with a high temperature, but the pulsation in the tumour had greatly diminished. On the 16th day he got up, and went alone to the water-closet, without leave. While there, the sac suddenly burst, and about 16 ozs. of blood were lost. The hæmorrhage was controlled almost immediately, and, after consultation, Dr. Eliot determined to inject the sac with a solution of persulphate of iron, as the compresses which had been applied were yielding. Six drachms were injected, with the effect of hardening the periphery, and later in the day, as there was considerable pulsation in the axes of the aneurism, 2½ drachms of the solution were injected. The general result was the control of the

bleeding, but the patient was restless, and his mind feeble. On the day after the accident the ligature on the subclavian came away, and, at his own desire, the patient was removed on a stretcher to his home. On the 5th of November, the 21st day after the operation, the contents of the sac began to protrude through the seat of rupture. Around the protruding mass was a clearly-marked line, not unlike the line of demarcation in gangrene. The finger could be passed between the mass and the sides of the opening. Next day it came out, and was not followed by the loss of a drop of blood. The tumour had entirely disappeared, and in its place was a chasm of sufficient capacity to receive at least three fingers. The remainder of the coagulum could be plainly seen rising and falling with the cardiac impulses. He gradually sank, and died on the 25th day, after a second hæmorrhage. The carotid ligature was found loose in the wound. The aorta was atheromatous, and the mouth of the arteria innominata was two inches in diameter, and involved the left carotid in its expansion. The anterior wall of the arteria innominata was developed into a sacculated aneurism, the vertical diameter of which was $5\frac{5}{8}$ inches, the transverse 4 inches, and the antero-posterior $3\frac{5}{16}$ inches. The sac was entirely occluded by concentric laminæ of fibrinous coagulum, the coagulum extending into the subclavian and carotid arteries. Professor Antisell observes that the total blood represented by the whole clot would be equal to 5 lbs. 13 ozs., which, with the hæmorrhages, about 38 ozs., would represent a total loss of 8 lbs. 3 ozs. to the system. The weight of the man at the period of operation did not exceed 130 lbs., and the estimated weight of blood in such a frame is $\frac{1}{13}$, or about 10 lbs., out of which, on deduction of loss of 8 lbs. 3 ozs., there would remain in the body only 1 lb. 13 ozs. at the time of death.

ERGOTINE IN ATONY OF THE BLADDER.

Von Langenbeck recommends the subcutaneous injection of ergotine in cases of atony of the bladder, associated with enlarged prostate (*Berlin Klin. Woch.* and *Med. Times and Gazette*, Feb. 24, 1877.) In three cases the contractile power was at once increased so as to enable the patient to discharge additional urine, and in a few days it had so augmented that very little urine was left behind. On the first day 0·12 grammes of Bonjean's solution were injected. After one or two operations the improvement was considerable, and even a diminution in the size of the prostate seemed to have

ensued. Israel corroborates the favourable report, and mentions a case in which the patient is now able to retain urine for three hours, whereas before he voided it every ten minutes.

PENILE PHLEBITIS.

Mr. Clement Lucas (*Practitioner*, January, 1877) relates a case in which there was, he believes, phlebitis of a vein on the upper surface of the penis, giving rise to symptoms that might be misinterpreted. A plethoric young man cohabited with a woman for two days, and left her, fearing he had contracted some venereal disorder, owing to a sensation of strain in the penis. A day later he felt pain and itching along the right side, and observed a red line running from the base to the prepuce. The penis was white, doughy, much swollen, and in a state of phimosis. There was no glandular enlargement or tenderness. The œdema subsided under the application of lead lotion, and on retracting the prepuce the whole surface exposed was found to be perfectly healthy, without a trace of any abrasion. The red line corresponded to the position of the superficial vein, which takes a course backwards between the dorsal and lateral aspects of the organ, and which is often asymmetrical. That the condition present was inflammation and plugging of the vein, was supported by the fact that the superficial veins of the thighs and legs were in a varicose condition, and that, by the patient's own statement, the particular vein in question was always prominent, and probably in as unhealthy a state as those of the lower extremities.

RUPTURE OF THE HEALTHY ŒSOPHAGUS.

The recent occurrence of a case of rupture of the healthy œsophagus in the practice of Dr. George Allen, of Boston, gives occasion for the publication of a paper on the subject by Dr. Reginald Fitz, Assistant Professor of Pathological Anatomy in Harvard University (*American Journal of Med. Sciences*, January, 1877). The patient was aged thirty-one, and had suffered from attacks of gastritis, induced by free drinking. On Jan. 26, 1876, he suddenly became partially strangled by a particle of food lodging "somewhere in his throat." Every resource of domestic surgery was employed to afford him relief, and, after an hour of great discomfort and intense anxiety, he succeeded by a concentration of his entire muscular energy in ejecting the obstructing fragment. This proved to be a piece of hard, tough, gristly meat, nearly circular in shape,

about an inch in length and rather more than half an inch in diameter. It came from his mouth with the noise and force as if "propelled from a pop-gun." He sank back exhausted, and almost immediately ejected a moderate quantity of clotted and liquid blood. His attendant then noticed a swelling at the angle of the lower jaw on the left side, followed by a corresponding swelling on the right. These were soon united by a swollen isthmus across the upper part of the trachea and the larynx. Fluids were easily swallowed, but the swelling rapidly increased. When seen by Dr. Allen, the pulse was 90, and small, and the skin moist. He complained of no pain, but had slight tenderness on pressure on the left side of the trachea, just over the clavicle. He had vomited once, an hour after the meat was expelled, but there was no blood. The swelling was extending upon both sides of the face, both cheeks being considerably puffed out. Dr. Allen learned that in the efforts to expel the meat the lungs were fully inflated, and then, the muscles being tense, violent expulsive efforts were made, during which he became red in the face. These efforts were not suggestive of vomiting, nor was there any complaint of nausea. There was occasional slight bloody expectoration. Pain in the left chest was complained of, but there was no evidence of any sudden tearing of the tissues in this region. As the case progressed, the contents of the stomach were frequently ejected, and blood was occasionally vomited. He swallowed without difficulty or pain. There was no cough, but a constant expectoration of thick tenacious mucus, sometimes mixed with blood. The emphysematous character of the swelling became fully developed, the whole subcutaneous cellular tissue of the body undergoing the process of inflation. The face, eyelids, neck, the upper part of the chest in front, and the entire back, were swollen. Orthopnœa was never present. On the 29th, symptoms of *delirium tremens* manifested themselves. On the 2nd February he had three attacks of cramp, each lasting about half-an-hour, and being immediately preceded and associated with a flushing of the face. A sharp, excruciating pain accompanied these, referred to the region of the heart and stomach. The attacks began with a trembling in all the limbs, and a quivering of all the flexor muscles. These gradually contracted, until it appeared as if the extreme limit of flexion had been reached. The extremities were firmly held in this position, and no force that it was desirable to apply would overcome this fixed rigidity of the muscles. Gradually, however, relaxation set in, and at the end of half-an-hour a considerable degree of mobility in the

limb was re-established, though, after the first attack, the rigidity did not entirely disappear. He died on the eighth day after the accident.

A *post mortem* examination revealed a longitudinal rent in the œsophagus, two inches in length, extending through all its coats, at and below the bifurcation of the trachea, in front and to the right. Its edges were sharply defined, and gave no evidence, microscopically or otherwise, of a pre-existing ulcerative or degenerative process. A communication was thus established between the œsophagus and a sinuous cavity in the posterior mediastinum on the right, which extended between the œsophagus and trachea in all directions, and behind the former to a limited extent. This cavity was of the size of a small lemon, crossed by fibrous trabeculæ, and filled with clotted blood. The posterior wall of the trachea, corresponding with the cavity, was of a greenish colour. The inner surface of the œsophagus, from the bifurcation of the trachea to the cardiac surface of the stomach, was greenish in colour—its epithelium layer slightly flocculent, occasionally thickened in patches, and entirely absent over a space an inch in diameter below the rent, the exposed surface being smooth, its walls of normal consistence. The appearances presented by the stomach were those of chronic catarrhal gastritis.

There was nothing in the symptoms to call attention to disease of the œsophagus, or its immediate vicinity. The impaction of a bit of food in the œsophagus apparently gave rise to neither nausea nor vomiting. The expulsive efforts did not suggest vomiting, but rather a straining, such as might occur in defecation or parturition. It is evident that the stomach played but little direct part in this process. It might be thought that the emphysema was due to the escape of gas or air from the stomach, through a rent in the œsophagus made below the meat while it was still impacted. Opposed to this view is the fact that during the violent straining and the obstruction of the œsophagus the emphysema was not noticed, but constantly progressed after the œsophagus was open, and the respiration relatively quiet. It seems most likely, therefore, that a rupture of the air-passages was the cause of the emphysema at the outset, as it evidently was later; that this rupture took place on the left side, independently of the tear in the œsophagus, from the fact that the entire pleural tissues and the pleural adhesions on this side alone were infiltrated with air, and that there was an absence here of evidences of recent pleurisy. As to the subsequent symptoms, there were scarcely any which called direct and exclusive attention to the œsophagus.

The number of indisputable cases of the œsophagus reported, in which there was no pre-existing disease, may be considered as two, possibly three—those of Meyer (*Med. Vereinszeitung in Preus.* 1858, Nos. 39, 40, 41), of Allen (now reported), and of Gramuatzki (*Ueber die Rupturen der Speiseröhre:* Königsberg, 1867). See also a paper by Dr. Charles (*Dublin Quarterly Journal of Medical Science*, 1870. Vol. I., p. 311).

In these cases rupture takes place between the bifurcation of the trachea and the diaphragm in the anterior or lateral wall of the œsophagus, and corresponds in direction with the long axis of the tube. Such rents lie wholly within the thoracic cavity, are from one to two inches in length, and are distant from, rather than near to, the cardiac orifice of the stomach. There are two factors essential: the impaction of a foreign body in the œsophagus, and the exercise of great muscular force in the attempts to remove it. Those persons in whom the lesion has been met with have been drinkers, and have suffered from various disturbances of digestion. There is no reason to suppose, however, either that the excessive use of alcohol, as such, or the digestive disturbances, have been special predisposing causes of any marked importance.

The diagnosis is difficult and unsatisfactory. The order of points to be borne in mind is—the impaction of a foreign body, violent straining efforts, ejection of some blood, emphysema. Pain is not a prominent symptom, and is referred to the region of the stomach, and, later, to the emphysematous parts. Liquids may be swallowed without pain, though a feeling of constriction is at times excited by their passage downwards. When the death is slow, the affection is essentially a gangrene of the mediastinum, combined with gangrenous pleurisy. Tetanic convulsions may occur if the inflammation involves the nerves along the spine. Hamburger (*Klinik der Œsophagus Krankheiten:* Erlangen, 1871, p. 189) observes:—"We believe that by auscultation of the œsophagus during the act of swallowing, the most valuable assistance may be obtained. The place where the perforation has occurred may be exactly designated when the difficulty in swallowing is relieved, and the fluids swallowed reach a certain point only beyond which they cannot be recognised. Sometimes a slight blowing sound is heard at this point on swallowing. This method is applicable only to those cases where the rent is sufficiently large to permit the liquids to pass through. If the opening is too small for this, there is then no communication, and the rupture runs a latent course."

PANCREOTOMY.

Dr. B. Allen, of Sebastopol, California, records a case of excision of the pancreas, in *The American Medical Weekly*, Nov. 11, 1876. (See also *Edin. Med. Jour.*, Feb. 1877.) The patient was an Indian, aged thirty-five. The pancreas protruded from a wound above the left kidney, the result of a stab. The mass was partially gangrenous, and seven inches of it were removed, a ligature having been first applied. The patient recovered completely. Five other cases of recovery from this operation are recorded.

EXCISION OF EPIPHYSAL CARTILAGES FOR DEFORMITIES.

M. Ollier, who is already so well known in connexion with investigations having reference to the affections of bones, has recently published some results obtained by a series of experiments upon animals (*Rev. Mensuelle de Med. et de Chir.*, and *Lond. Med. Rec.*, April, 1877.) The conclusions at which he has arrived are—1st. Removal of the whole epiphysal cartilage leads to absolute arrest of development. 2nd. Partial removal leads to unequal development, and more or less curving of the bone. 3rd. Irritation of the cartilage is followed by the same results as removal, if the irritation be sufficient to destroy the cartilage or cause decided changes in the nutrition of its elements. Such changes follow inflammation of the ends of the diaphysis, and especially of the spongy tissue adjacent to the cartilage, and consist chiefly of proliferation of the cells, which either further degenerates into pus or forms granulation tissue. Cartilage thus changed never recovers its healthy condition. Direct irritation of the cartilage prevents any further growth of the bone, but indirect irritation leads to increase in both the length and thickness. Indirect irritation may be set up by lacerating or cauterising the periosteum, perforating the osseous tissues at the end of the diaphysis, or crushing the medulla.

If the epiphysal cartilage of one of two parallel bones be destroyed, and if the other continue to grow, it will form an arc, the chord of which will be formed by the shortened bone. In one case of arrested development of the ulna, due to osteitis in childhood, the radius was curved, the concave surface looking inwards, its head was dislocated outwards, and the hand remained in a supine position. The ulna of the healthy arm measured nine inches in length, but the ulna of the deformed arm only measured four and a half. In one case of arrested development of the radius a partial excision of the epiphysal cartilage of the ulna greatly improved the position of the

hand. In a case in which the bones of the lower extremity were irregular on account of infantile paralysis, the condition was improved by irritating the diaphysis of the tibia and thus increasing its length. In three cases the lengthening of the tibia was so marked after the irritation that slight valgus resulted, necessitating a similar irritation of the end of the fibula.

SPLENOTOMY.

Professor Billroth relates a case of splenotomy which, although fatal, has helped to confirm his opinion of the propriety of the operation in certain cases (*Wiener Med. Woch.*, 1877, No. 5, and *Med. Times*, April 7th, 1877). The patient was a married woman, aged forty-five. Two years ago she observed a tumour on the right side, and, on examination, she was found to have an enormous spleen. The white corpuscles of the blood were to the red as five to one. It was resolved to remove the gland. The incision passed a hand's breadth above and below the umbilicus. The spleen was not adherent, and was readily extended from the wounds. Six ligatures were applied, and no blood flowed. All dropsical fluid was sponged away, and two drainage tubes were introduced. In two hours hæmorrhage occurred, owing to the efforts of the patient to pass hardened fæces which had not come away with the enema given before the operation. The attempts to stop it were vain, and the woman sank in four and a half hours. At the *post mortem* it was found that one of the ligatures had disappeared, and it is probable that it had given way during the patient's straining. Those who witnessed the operation believe that splenotomy is a simpler operation than most ovariotomies.

THE ACTUAL CAUTERY IN CUTANEOUS SURGERY.

Dr. Henry Piffard, Professor of Dermatology, University of New York, advocates the use of the actual cautery in many affections of the skin, or of the parts immediately subjacent (*Charleston Medical Jour.*, January, 1877). Thus, in rosacea, varicose veins, angioma, nævus vascularis, epithelioma, lupus, cancroid, ulcers, chancroids, venereal warts, pediculated tumours of the skin, and phimosis, he has had much success in the use of the cautery. In rosacea, in which the veins of the nose, especially those of the alæ, are greatly distended, and more or less varicose, he touches the vessel to be operated upon with a fine platinum wire, heated to whiteness by a spirit lamp or small battery. The result will be obliteration of the

vessel, reduction of a good deal of the congestion, and infiltration around it, and ultimately a minute punctate scar, the size of which will depend upon the care and delicacy with which the operation is performed. In several instances he has secured obliteration of enlarged veins of the lower extremity by bringing the white-hot platinum (heated by electricity) almost in contact with the vein. The platinum should not quite touch the skin, and should be held in position for a minute or more. The immediate result will be a blister upon the surface, and ultimately obliteration of the lumen of the vessel, and a pigment spot, more or less permanent, upon the integument. In the case of nævus, the instrument should be heated to a *red* heat only, introduced and kept *in situ* some little time. If white heat were employed there would be considerable danger of hæmorrhage. When, however, the nævus is considerably elevated, the best way of operating is to make a small incision or puncture with a scalpel just through the skin at the edge of the nævus, then introduce the galvano-cautery wire cold, close the battery circuit, and let the wire heat gradually, taking care that no more heat is employed than would suffice to redden the wire in the open air. When this is attained, open the circuit and carefully withdraw the wire. By this method of operating there will result coagulation of the blood and destruction of the vessels to a considerable extent around the wire, and very little risk of hæmorrhage.

GAS IN THE PERITONEAL CAVITY.

At the Clinical Society, Mr. Godlee has reported three cases in which gas had been found in the peritoneal cavity, without any perforation of the bowel (*Brit. Med. Journal*, March 17th, 1877). This condition is important to remember in cases of colotomy, as the inflated peritoneum may be mistaken for the gut and incised. In a patient operated upon by Mr. Heath, there had been obstruction for three weeks, and there was much distension. Gas in the peritoneal cavity was suspected, because there was scarcely any liver dulness, and the percussion note over the whole abdomen was about equal. The first thing that presented in the wound was a knuckle of peritoneum distended with gas and a little clear fluid. But the bowel was searched for, found, and opened in the usual way. The patient recovered, and it was safe to say there was no perforation. In the other cases no perforation could be found *post mortem*. Mr. Godlee thinks the condition is accounted for by osmosis.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

THIRTY-NINTH ANNUAL SESSION.

Saturday, June 16th, 1877.

THOMAS DARBY, F.R.C.S.I., President, in the Chair.

Intestinal Constriction.

DR. JOHN A. BYRNE said:—It is usual to exhibit morbid specimens only at the meetings of this and kindred Societies, and as the specimen I have to exhibit is not morbid, but, on the contrary, perfectly healthy, it may appear somewhat paradoxical to do so. The explanation, however, of this paradox is, that it was connected with very extensive disease of the neighbouring viscera. They are the uterus and ovaries which were taken from a young girl who died recently in St. Vincent's Hospital, under the care of my friend, Dr. Cryan, who asked me, while the girl was alive, to see the case in consultation with him. She was a delicate, strumous girl of about seventeen years of age, who was admitted labouring under the following symptoms:—She vomited everything which she took, and this vomiting had been going on for some days; she complained of great pain in the left iliac and suprapubic regions; this pain was persistent, but at intervals paroxysms of the most acute kind occurred; her pulse was very small and quick, her skin was dry, and her tongue black and streaked; and her face had the worn-out expression so peculiar in cases of abdominal suffering, the dark circle under the eyes being very well marked, almost as much so as in a case of cholera. She could only obtain rest through the influence of opiates, administered externally and internally, and the vomiting was so persistent that nothing seemed to check it except for a short time. The bowels were not very constipated, being freed naturally and by enemata.

On examining the abdomen, it appeared more prominent on the left

side in a space about five inches in circumference between the umbilicus and the anterior superior spine. This place was very tender to the touch, and it was to this region that she referred the pain; it was dull on percussion, and this dulness contrasted in a marked manner with the almost tympanitic clearness of the surrounding parts. There was some difficulty in making out the history of the case, but this much we ascertained, that she had not had any menstrual discharge for eight months, that she had been previously regular, and that the pain and tenderness had existed for some time, but that the symptoms had become so aggravated that she was obliged to seek admission into hospital. The breasts were pale and flaccid, and did not present any indication of pregnancy.

Dr. Cryan requested me to make a vaginal examination, and it is to this I would direct the especial attention of the Society.

The hymen was intact, or very nearly so, and without a great deal of difficulty I passed my finger into the vagina. The cervix and body of the uterus were very low down, and lay, in fact, close to the vulva. The uterus appeared to be enlarged; and lying behind the uterus in Douglas's space could be felt a large soft tumour, elastic and movable on pressure; it gave to the finger the sensation produced by the amnionic membrane when filled with fluid; to my finger it conveyed the impression that there was fluid in this tumour; the sound passed into the uterus, not without some difficulty. This and the great and long-continued pain led me to suppose that there had been some inflammatory action going on which had terminated in the formation of matter.

Notwithstanding the judicious treatment which she received at Dr. Cryan's hands, the girl sank, worn out by the pain, the vomiting, the want of sleep, and the inanition produced by the inability of the stomach to retain food of any description.

I saw the ejecta from the stomach on several occasions; it was a dark-coloured fluid, such as we are familiar with in cases of long-continued vomiting, but it never betrayed any fæcal characters, such as it would have done if there had been obstruction in any part of the alimentary canal.

On examination of the abdomen after death, when the integuments were laid open and the interior came into view, the intestines, which were enormously distended with gas, and which had been restrained by the abdominal envelopes, spread out in all directions, forming enormous masses of gut coiled about one another; and in the part which corresponded to the seat of the pain during life, two masses of intestine lay agglutinated together, and were covered by a quantity of lymph which had been effused for some time. This lymph kept the intestines glued to one another. There were also some bands of effused lymph, which had been recently effused; there was no purulent infiltration, however,

but in the pouch of Douglas there was about a wineglassful of a red-coloured fluid. What, however, was particularly remarkable was the enormous distension of this part of the intestine by gas, which distension evidently was caused by the constriction and gluing together of the intestines by this lymph, and the tumour which was felt behind the uterus was nothing more than the enormously distended rectum and lower part of colon which had become displaced and thrown down into the space between the sacrum and the uterus. The uterus and ovaries were, as you may perceive, perfectly normal, and such as would be expected at this age and in a virgin.

The case is interesting in many particulars, and illustrates the difficulty in arriving at a satisfactory diagnosis in tumours of the abdomen. At first sight the case resembled in some points a case of extra-uterine fœtation, but a little consideration dispelled this view; the next conclusion was that there was a collection of fluid, the effect of inflammation in some part of the pelvis. The long-continued vomiting, no doubt, pointed to intestinal obstruction, but this was not the case, for there was no fæcal vomiting, nor any approach to it, as I have said, and the vaginal evidence was very remarkable, inasmuch as what appeared to be a collection of fluid in considerable quantity sufficient to displace the uterus was in reality due to an enormously distended intestine, which had forced its way behind the uterus and displaced it, as we have seen, and thus simulated a tumour in the recto-vaginal pouch.

Dr. MacSwiney.—Was there any constipation?

Dr. Byrne.—No; her bowels were freely moved by enemata and naturally, as I have stated.

Ovarian Cyst.

Dr. Atthill exhibited an ovarian cyst removed from a patient on whom the operation of ovariotomy had been performed in the Rotunda Hospital a few days previously. The patient was progressing very favourably.

Dr. Tarnier's Midwifery Forceps.

Dr. Atthill exhibited the midwifery forceps recently invented by Dr. Tarnier, Surgeon-in-Chief to the Maternity of Paris. Dr. Atthill said:—Dr. Tarnier objects to the forceps in general use, because there is no means of knowing with certainty in what direction traction should be made by them while the fœtal head is being drawn through the pelvis. His forceps, now exhibited, have two pairs of blades—one prehensile, the other the tractile. The former, when once applied, should not be touched by the hand of the operator, but traction should be made with

the other in the direction indicated by the former. He also maintains that, with his forceps, the head rotates with much more facility than if the English instrument is used. We have used Tarnier's in the Rotunda Hospital, and are prepared to admit that the instrument does possess the merits claimed for it by its inventor; but, on the other hand, there are serious objections to it, the chief one being that the pressure of the blades on the fœtal head is regulated by means of a screw, and that it is quite possible for the head to be compressed to a degree calculated to endanger the life of the child without the operator being in the least aware of it. However, in the instances where I have employed it, I was pleased with the instrument to a degree much beyond what I expected. The instrument is, however, much more troublesome to apply than the English one, and will never, I am satisfied, be a popular one.

Report of the Rotunda Hospitals for year ending 5th November, 1876. By Lombe Atthill, M.D., Master of the Hospital.

Part I.—The Lying-in Hospital and Extern Maternity.

Following the example set by my predecessor, Dr. George Johnston, I propose to lay before the Society a Clinical Report of the Rotunda Hospitals for the past year. I regret that want of time has compelled me to omit many of the details so accurately prepared by him; but as Dr. Johnston undertook the publication of these reports with the avowed object of showing[1]—

"1st. That zymotic disease (puerperal fever) does not prevail endemically in large lying-in hospitals, provided they be *properly managed*; and

"2ndly. That puerperal fever, when it is epidemic, does not necessarily make its appearance in great maternity hospitals, in the first instance," an object in which he so perfectly succeeded; and as several of his tables were compiled specially with this view, my omissions will perhaps be a subject of less regret. On the other hand, I have given some details relative to the gynæcological department, and extern maternity, which departments of the hospital have, in consequence of the changes recently made by the governors, assumed positions of greater importance than they hitherto occupied in the institution. These changes comprise—

1st. The enlargement of the gynæcological department, and the complete separation of the lying-in hospital from it.

2ndly. The taking of steps calculated to render the extern maternity more efficient.

3rdly. The erecting of a suitable building as a dispensary for women.

[1] Dublin Journal of Medical Science. February, 1871.

The first was effected by allocating the whole of the auxiliary hospital to the reception of patients suffering from uterine and ovarian diseases. Formerly some of its wards were used as labour wards; it now contains, as re-modelled, three large and four small wards, and can accommodate thirty-five patients. One of the small wards is reserved solely for the reception of patients suffering from that form of ovarian disease necessitating the capital operation of ovariotomy, no other cases being admitted into it.

This hospital stands separate from the principal building (the Lying-in Hospital) at a distance of seventy-two feet to the west, and in advance of it by twenty feet.[a]

The second important step taken by the governors is thus referred to in their report for the year ending 31st March :—

"The requirements of poor women, who are unable to leave their homes at the period of their confinements, have engaged the anxious attention of the governors. The number of women seeking to be attended to in this way by the charity has of late become so large that the governors have found it expedient (for the effective working of this department of the institution) to appoint a medical officer, termed 'The Resident Clinical Clerk,' whose duty it is, under direction of the master and assistants, to attend, and visit subsequently to their confinements, such poor women as apply for attendance at their homes. In taking this step the governors wish to point out that they are not alone conferring a benefit on the poor, and extending the usefulness of the charity, but are carrying out the recommendations of more than one Royal Commission, appointed to inspect and report upon the condition of the institution."

This arrangement has proved most satisfactory, and the result has been that the number of deliveries in the extern maternity has risen from 275 in the clinical year ending 5th November, 1875, to 638 in that terminating 5th November, 1876, the number of cases admitted into the house being the same in both years—a clear proof that the class of patients seeking relief from the two branches of the charity are distinct.

During the year ending 5th November, 1876, 1,047 patients were delivered in the hospital. Of these—

59 were delivered with the forceps.
11 by version.
1 by the cephalotribe.
9 cases of twins occurred.
28 ,, of breech, or feet presentation.
4 ,, of the hand or shoulder.
4 ,, of face presentation.

[a] See Dr. Johnston's Clinical Report for 1869, in Dublin Quarterly Journal of Medical Science. February, 1870.

12 cases of prolapse of funis.
2 „ of placenta prævia.
18 „ of accidental hæmorrhage.
21 „ of *post partum* hæmorrhage.
8 „ of adherent placenta, requiring the introduction of the hand.
1 case of rupture of the cervix.
1 „ of rupture of the uterus, and
2 cases of convulsions.

The forceps was applied fifty-nine times, or once in about every 17 cases. No fixed rule was laid down with respect to the application of this instrument. In about one-fifth of the cases the os uteri was not completely dilated. Barnes's long double-curved forceps were almost invariably employed. Indeed, the short straight forceps were never used, except on one or two occasions, when the head being delayed at the very outlet from inertia, I applied it, with the sole object of showing the class the mode of doing so. Barnes's forceps are, in my opinion, so superior to any others for facility of application, lessened liability to slip, and greater power, that, while admitting that the short straight forceps (known in this city as Beatty's forceps) are quite sufficient to effect delivery in many cases where the head is low, it will, I am convinced, as prejudice subsides, entirely supersede the latter instrument.

CEPHALOTRIPSY.

In the single case, No. 3, Class I., in which the cephalotribe was used, the fact of the pelvis being under the average size having been demonstrated by the result of three previous labours, in all of which the child had been lost, I decided, in the hope of saving its life, to attempt delivery, on this occasion by version, with the most unfortunate results. Version was accomplished without much difficulty, but all the efforts which could, with safety, be exerted by myself and Dr. Macan, failed to bring the head through the brim ; these efforts were continued for fully fifteen minutes. The child was then evidently quite dead, pulsation in the funis having ceased for some time. I, therefore, perforated behind the ear, applied the cephalotribe, and finally, with difficulty, extracted the head; the mother died. The child was very large, weighing, after evacuation of the brain, upwards of 9 lbs. ; had the child been of average size, possibly my efforts to save its life might have been successful, but the result of the case has had the effect of confirming my previous experience—namely, that turning in cases in which the pelvis is undersized is a proceeding of a very hazardous nature, and my opinion is adverse to its practice.

I shall not weary the Society with commenting on other cases, though many present features of great interest, but shall proceeed to consider the deaths which, during the past year, have been unusually

numerous. Certain facts connected with these will not be wholly devoid of interest.

From the 5th November to 5th December, not only did no death occur, but during that period, in which about ninety patients were delivered, the health of the hospital was all that could possibly be desired. On the 5th December, 1875, a woman (Case I., Class III.), was delivered with the forceps, who, on admission, was plainly in a state of great depression. Subsequently we ascertained that her family had discarded her on account of her having married a man of bad character, who, to add to her sorrows, had been committed to gaol on a charge of theft on the very morning of her confinement. She became maniacal on the third day, and died on the 13th December of peritonitis.

On the 28th December, after an interval of twenty-three days, another death occurred (Case II., Class III.). The patient was a young unmarried woman, who felt her position keenly. She was constantly crying. She, in like manner, became maniacal, and died of peritonitis.

Next in order of the cases of so-called "puerperal fever," which can with any fairness be considered as being of an epidemic character, was that of a woman (Case II., Class II.) delivered on the 12th January. She was very ill on admission; tongue dry; pulse 120; rising during labour to 140. She, too, became maniacal, and died.

On the 24th January a woman was admitted in a condition almost of starvation. In this patient (Case III., Class III.) symptoms of peritonitis showed themselves on the day following delivery. She improved, seemed convalescent, but relapsed. This woman might fairly have been entered as having died of destitution.

On the 31st January a woman (Case III., Class II.) was delivered who had hæmorrhage before admission; her tongue was furred, and she had green vomiting during labour.

I ask the Society to say were these cases of zymotic disease generated in the hospital, or had the fact of their being delivered in the hospital anything to say to their deaths? If they have, how are we to account for the following one:—

On the 27th January, a date coinciding with that at which these cases were occurring, I was asked to meet Dr. M'Clintock in consultation with Drs. Halton and Ringwood of Kells, in the case of a lady of rank, confined at her father's residence, about two miles from that town. She had been delivered five days previously after an easy and rapid labour; her nursetender did not belong to Dublin, and had been staying for some weeks in the house with the patient, and it was known that she could not have been for months in attendance on any case of an infectious nature. Dr. Ringwood, who was engaged to attend this lady, did not arrive till after the birth of the child; he had not seen a case of puerperal fever for more than a year previously, yet this lady was attacked with puerperal

fever and died. Dr. Ringwood told me that he learned subsequently that a woman had died a few days previously of the same disease, at a distance of about two miles from this lady's residence. Here were two deaths occurring in a remote country district simultaneously with those I have quoted as having occurred in this hospital.

One other case I shall detail and then leave the members of the Society to form their own judgment on the question these cases raise. Several deaths occurred in the hospital in the months of March and April. Sixteen patients were delivered between the 1st and 6th of April, both days inclusive; of these four died (see Nos. 23, 24, 31, and 32). One of these was a young unmarried girl, one a married woman who had, during her husband's absence, become pregnant to a married man; both were in a state of extreme mental distress. Both were confined on the same day and died. A third had been ill before delivery; these three patients died on the 6th, 7th, and 10th of April. On the 6th a woman was admitted in labour, and was confined at 4 p.m.; at 8 a.m. on the following morning, April 7, she was, without any premonitary symptoms, seized with violent vomiting, which nothing could check, and she died the following day, at 7 a.m., twenty-three hours after the occurrence of the first symptom, thirty-nine hours after delivery. This terrible case, occurring simultaneously with the three cases just mentioned, impressed me so greatly that I seriously considered the advisability of limiting the admissions into the hospital; fortunately I decided to postpone doing so, as all the other patients in the hospital were quite well. I was further influenced by the fact that as two out of the four cases occurred in patients of a class in whom "puerperal fever" was likely to occur—namely, those suffering from extreme mental distress, while a third had been in bad health and given birth to a putrid child—I was justified in waiting a little longer before taking a step likely to cause alarm among the public. I say fortunately, for though no additional precautions were adopted, no case of any form of puerperal fever occurred subsequently. I do not mean fatal cases, but absolutely no case of any form of metria occurred during the whole of the following month, in which the full average number of deliveries occurred.

I ask again, were these cases of zymotic disease or not? or were they cases of puerperal disease developed by causes other than those of an epidemic nature.

If they were cases of true zymotic disease, how are we to account for their sudden cessation? If the "aggregation" of lying-in women be the source of puerperal fever, it should spread and be intensified under circumstances such as those I have narrated?

In order that the Society may be able to form a judgment on this subject I have divided the fatal cases into four classes. In the 1st class I have placed those who died from the nature of their labour. In the

2nd class those manifestly ill before admission into hospital, and who, I believe, would have died no matter where confined. In the 3rd class those suffering from mental distress—the majority of whom were unmarried; and here I may point out that in this hospital the deaths among women of this class must continue large, and consequently, for the future, as has been the case during the last fifteen years, tend to render the mortality of the hospital relatively greater than formerly. Twenty years ago the number of patients admitted into the hospital was, on an average, 2,000 annually; now the deliveries do not much exceed 1,000. But now, as then, it is the great refuge for the very poor and the wretched. The condition of the working classes has materially improved in Dublin of late years, and the majority of the wives of the artisan class now remain in their own homes for their confinements. But it is always among the very poor and wretched that the majority of deaths occur, and they now form the great bulk of our intern patients. In the 4th class I have placed those in whom no predisposing cause appeared to exist. This class includes eleven cases, but of these some might fairly have been placed in the 2nd class. Thus, Case IV. was 56 hours in labour; Case XI., 52 hours in labour, and was then delivered with the forceps; Case V., 40 hours in labour—very delicate previously; Case VII., child putrid—had been in bad health for a month before her confinement. But as in none of them did the evidence of there being any sufficient predisposing cause to account for the fatal result seem satisfactory to me, I have placed them in Class IV.

It is remarkable that out of the eleven cases comprised in this class no less than six were due to septicæmia and one to pyæmia. Of the remaining four, one died of bronchitis, and one of pneumonia; two only of true puerperal peritonitis. Of these, one was a very delicate woman; her labour was very tedious (40 hours). In the other nothing occurred during labour, or existed previous to it, to account for the attack.

On considering the details of all the foregoing cases, and watching them as I did closely during life, I have come to this conclusion—that the great majority of the fatal cases recorded were due to septicæmia—most of them, if not all, being auto-generic. That puerperal fever in some of its forms is infectious is beyond all doubt. But I do not believe that form of the disease which is due to auto-infection and which, in my opinion, is the most common of all, to be so. Nor am I satisfied that among the fatal cases enumerated above, anyone died of disease contracted in, or of infection emanating from, or present in, the atmosphere of the hospital.

A few words as to treatment. We tried various drugs with very nearly the same result, and that was altogether unsatisfactory. The hyposulphites and sulpho-carbolates, when borne, seem to do good, but

they were seldom, in bad cases, tolerated; frequently they were either vomited or induced purging, and had to be omitted. Sometimes quinine in full dose (5 to 10 grains), in combination with opium, agreed; but, with the exception of opium, I have little faith in drugs in the treatment of any of the forms of puerperal fever; and of all means of administering opium none can compare with the hypodermic injection of morphia.

Packing was tried in five cases; in four it gave relief—the temperature being lessened and the patient expressing herself comfortable after it. In one (Case VI., Class IV.) it produced symptoms of collapse; from this the woman rapidly rallied, and subsequently experienced great relief from the distressing thirst from which she had previously suffered. None of the patients, however, were permanently benefited. It is right, however, to add that it was only tried on patients whose condition afforded very faint hopes of recovery.

The process was carried out by placing the patient on a dry blanket, and enveloping her from head to foot in a sheet wrung out of cold water; this was frequently changed, the process being continued for about twenty minutes, the temperature being taken both before and after the packing.

The perchloride of iron was twice injected for the arrest of *post partum* hæmorrhage; both patients recovered. Our experience of this method of treating *post partum* hæmorrhage is very favourable.

It has been the practice in the hospital, for several years past, to administer a dose of ergot of rye just before the termination of labour, in all cases where the occurrence of *post partum* hæmorrhage was anticipated; and also in cases of tedious or difficult labour requiring the use of the forceps, before the patient was put under the influence of chloroform, chloroform being always administered in instrumental cases; but the ergot often failed to do good, sometimes because it was vomited, sometimes doubtless because the drug had not time to be absorbed into the system, and so to produce its specific effects. I must, however, candidly say that I place no reliance in ergot in cases of *post partum* hæmorrhage, at least when administered by the mouth. I have, therefore, for a long time past, had recourse to its hypodermic injection, diluting the extractum ergotæ liquidum with an equal part of water, and injecting twenty or thirty minims of this solution deeply into the substance of the gluteus muscle. I have no doubt but that, so employed, ergot is more energetic than when administered by the mouth; moreover, it produces its effect much more rapidly. I repeat, however, that ergot, no matter how administered, is, in cases of *post partum* hæmorrhage, an unreliable agent.

At the suggestion of Dr. Macan, ether was injected hypodermically in several cases; in one or two it produced marked improvement in the pulse, and the patient rallied wonderfully; in others it seemed to produce but little effect. It is, however, a perfectly safe remedy, and one which should be had recourse to in all cases of collapse.

In cases of rigid os uteri we rely altogether on warm hip-baths, and on the administration of the hydrate of chloral, giving usually 10 grains of this drug in an ounce of fluid every twenty minutes till 40 or 50 grains have been taken. It seems to relax the cervix, and, by allaying pain and often by inducing brief but refreshing sleep, to lengthen the intervals between the uterine contractions, which, when they recur, are generally increased in force.

Deaths occurring during Year ending 5th November, 1876.

CLASS I.	Cause of Death
Deaths directly traceable to the Nature of the Labour.	
CASE I.—R. B., aged twenty-three, first labour. Confined, 12th December, 1875; died, 16th. Tedious and difficult labour; os very rigid and pains inefficient. Chloral administered in 10-grain doses, without benefit; also had warm baths. After the lapse of 75 hours os still not more than half dilated, and head above brim, tongue being furred and pulse rising rapidly; long forceps were applied. Extraction occupied more than an hour. Child (deeply marked by forceps) born alive and survived. After delivery pulse was very feeble and irregular; she never rallied thoroughly, but remained in a semi-comatous state; slight abdominal tenderness; peculiar sickening smell off breath. Died on her fourth day.	Collapse and sub-acute peritonitis.
2. CASE II.—M. A. A., aged nineteen, first confinement. Delivered, 9th January; died, 9th. Had angular curvature of lumbar vertebræ; no pelvic deformity discoverable by vaginal examination; membranes ruptured early; os uteri rigid. Chloral 5i., administered in 10-grain doses; warm bath at 1 a.m. At 8 a.m., without any symptom having presented itself to excite alarm, pulse suddenly flagged, and she became faint; no appearance of hæmorrhage. Was at once delivered with the forceps of a dead child. Died within a few hours. *Post mortem* examination revealed a large rent in posterior wall of cervix, extending into body of uterus and involving peritonitis.	Rupture of uterus.
3. CASE III.—E. S., aged thirty-two, fourth confinement. Delivered, 5th February; died, 7th. Previous labours difficult—all the children being dead-born. Her two last labours were instrumental; waters had escaped 12 hours before admission; os never fully dilated. When 28 hours in labour, pains being powerful, and the head still above the brim, rupture of uterus being feared, it was decided to effect delivery by turning (forceps having failed to save child in previous labours). Turning effected, under chloroform, without much difficulty; but no effort sufficed to extract head, which remained jambed in brim; finally, it became necessary to perforate behind the ear, and to use the cephalotribe. She never rallied thoroughly, and died of collapse within 48 hours. Child very large, weighing 9 lbs. 2 ozs. after perforation.	Collapse.

Class I.—*continued.*	Cause of Death
4. Case IV.—M. D., aged twenty-one, first confinement. Delivered, 13th March; died, 20th. Admitted on 13th, having had a sharp attack of accidental hæmorrhage previously; stated also that she had had a rigor that morning; pulse on admission very rapid; first stage tedious from rigidity and inertia. Chloral in 10-grain doses administered with benefit. Forceps applied, os being $\frac{4}{5}$ths dilated. Peritonitis supervened on second day; sloughing of vagina before death.	Peritonitis and sloughing of vagina.
5. Case V.—C. G., aged twenty-eight, second confinement. Delivered, 3rd April; died, 18th. Placenta morbidly adherent, and so intimately attached that its removal was a matter of much difficulty; a great deal of blood was lost; restrained by injections of cold water into uterus. 5th, temperature 101°; pulse quick; discharge fœtid; uterus washed out with Condy. 7th, some abdominal tenderness; temperature 105·2°; *breasts full of milk.* 10th, up for an hour. 11th, had slight rigor. 12th, seemed well; removed to convalescent ward. 16th, was up; that night had a rigor. Sank rapidly and died on 18th.	Uncertain; probably septicæmia.
6. Case VI.—W. W., aged thirty-five, first confinement. Delivered, 10th May; died, 11th. Labour very tedious (43 hours), from early rupture of membranes, and rigidity of os. Pains frequent and inefficient; pulse quick. Chloral administered at 11 p.m. on 9th, and $\frac{1}{2}$ grain morphia injected hypodermically. Vomited much that night. Warm bath at 4 a.m. 10th, head began to descend about noon. Tongue dry; pulse slow. Delivered by natural efforts at 6 p.m.; child dead. Slept well till 6 a.m. next morning, when she was seized with violent abdominal pain, followed by tympany. Sank rapidly, and died same day at 3 p.m. No *post mortem* could be obtained.	Uncertain; no *post mortem* obtained.
7. Case VII.—E. R., aged twenty-five, third confinement. Delivered, 16th May; died, 23rd. Had lost an immense quantity of blood before admission, and was so weak and faint that brandy had to be freely administered. She rallied, but pulse again failed. Ether injected subcutaneously six times, with benefit. Membranes ruptured; no further hæmorrhage occurred. Some uterine action set in; forceps then applied, and child extracted alive. Tenderness of abdomen complained of on second day; vomiting also set in; this subsided on 19th; then became maniacal, and died on 23rd.	Septicæmia following hæmorrhage.
8. Case VIII.—R. D., aged thirty-four, second confinement. Delivered, 28th June; died, same day. Admitted suffering from hæmorrhage; os size of half-crown; membranes were ruptured, but hæmorrhage did not cease. Hand introduced and version effected without much difficulty; *post partum* hæmorrhage followed, which was ascertained to proceed from laceration of cervix. Died in a few hours.	Hæmorrhage.

CLASS II. *Deaths resulting from, or supervening on, Diseases contracted before Admission into Hospital.*	Cause of Death
9. CASE I.—C. C., aged thirty, first confinement. Delivered, 8th March; died, 14th. Was phthisical; some *post partum* hæmorrhage; symptoms of pyæmia set in within 12 hours of delivery. Died on 14th.	Phthisis and pyæmia
10. CASE II.—E. B., third confinement. Delivered, 12th January; died, 20th. Ill on admission, pulse quick and tongue furred; previous labours had been instrumental; both children born dead. On this occasion head did not enter brim; pulse rose to 140; tongue brown and dry; forceps applied, and delivered without much difficulty—child alive. After delivery pulse fell to 90, but rose subsequently; became violently maniacal on her sixth day.	Septicæmia
11. CASE III.—E. C., first confinement. Delivered, 31st January; died, 3rd February. Had some hæmorrhage (accidental) before admission; tongue loaded; had green vomiting during labour; labour very tedious in first stage, which was 40 hours in duration. Forceps finally applied before os was fully dilated; extraction easy; child alive. Died on her fourth day.	Peritonitis.
12. CASE IV.—M. D., aged twenty-two, first confinement. Delivered, 4th March; died, 11th. Admitted suffering from aphonia, due to chronic laryngeal disease; was phthisical. Labour easy. Symptoms of subacute peritonitis set in within 24 hours. Sank rapidly.	Phthisis and peritonitis.
13. CASE V.—A. B., aged twenty-eight, fourth confinement. Delivered, 7th March; died, 18th. Admitted in an advanced stage of phthisis; did well for first three days; gradually got worse, and died on eleventh day.	Phthisis.
14. CASE VI.—A. O'C., aged twenty-two, first confinement. Delivered, 28th March; died, 10th April. Admitted suffering from bronchitis, which had existed some days prior to admission; was in a state of great debility. Symptoms of metritis set in 48 hours after delivery, much aggravated, if not induced, by constant coughing. Died on her fourteenth day.	Bronchitis followed by metritis.
15. CASE VII.—E. K., aged twenty-three, first confinement. Delivered, 11th September; died, 19th. Feeble and delicate; has suffered from repeated attacks of bronchitis. Symptoms of bronchitis set in on morning of third day; cough very troublesome; pains in chest; great dyspnœa; sputa presented a remarkable appearance, being of a greenish blue colour. Sank on 19th.	Bronchitis.

Class II.—*continued.*	Cause of Death
16. Case VIII.—E. S., aged twenty-two, first confinement. Delivered, 30th October; died, 6th November. Admitted in a most destitute condition, evidently very ill; temperature immediately after delivery 105°, reduced by packing to 103°, without any improvement following. Complained of intense headache on 1st November; vomiting set in on 2nd. Sank rapidly, evidently fretting greatly.	Septicæmia following destitution.
Class III.	
Deaths occurring in Patients suffering from extreme Mental Distress.	
17. Case I.—E. R., aged twenty-four, first confinement. Delivered, 5th December; died, 13th.[a] Difficult labour; face to pubes. Forceps applied when 30 hours in labour; extraction difficult; some laceration of perinæum; became maniacal on her third day. Symptoms of peritonitis set in immediately after; fretted greatly, having been discarded by her family in consequence of her marriage with a man of bad character, and who had been committed to gaol just before her admission into hospital.	Mania and peritonitis.
18. Case II.—A. S., aged twenty-five, third labour. Delivered, 28th December; died, 5th January. Pulse quick before delivery, and never fell. Complained of pain in abdomen on her second day; became maniacal on her fourth day; dusk red patches subsequently appeared on her feet and legs; was fretting greatly; cause unknown.	Septicæmia and peritonitis.
19. Case III.—A. D., aged eighteen, second confinement. Delivered, 24th January; died, 9th February. Admitted in a state of great destitution. Stated she had been for some time almost without food. Was fretting greatly; labour easy. Symptoms of peritonitis set in on second day; improved under treatment; but sank subsequently.	Peritonitis.
20. Case IV.—M. H., aged twenty-five, first confinement. Delivered, 8th February; died, 14th. Both stages tedious, from inertia. Within a few hours after delivery complained of severe pain in abdomen; lochia became very fœtid. On 12th erysipelatous patches appeared on buttocks. Was fretting much; had been discarded by her family, and deserted by the reputed father of her child.	Peritonitis and destitution.
21. Case V.—B. F., aged twenty-three, second confinement. Delivered, 17th February; died, 23rd. Footling, labour tedious; 42 hours duration. Did well for first 24 hours. Symptoms of peritonitis then set in; complained mainly of pain in legs and arms. Sank rapidly. Was unmarried, and very desponding.	Peritonitis.

[a] No death had occurred in the hospital during the previous six weeks.

Class III.—*continued.*	Cause of Death
22. Case VI.—M. K., aged twenty, first confinement. Delivered, 24th March; died, 30th. Labour easy; complained of pain in abdomen next day; pulse 130; temperature 105. Was unmarried, and fretting.	Peritonitis.
23. Case VII.—L. G., aged nineteen, first pregnancy. Delivered, 1st April; died, 6th. Labour easy; pulse very small and weak; clot expelled on the day after delivery. Lay from the first in a listless apathetic state. Temperature on third day, 104·7°. Sank rapidly, without any local symptoms whatever. Was unmarried, and desponding.	Septicæmia
24. Case VIII.—E. B., aged thirty-two, fifth pregnancy. Confined, 1st April; died, 7th. Had a rigor 12 hours after delivery; was hot, skin dry, pulse quick. On 4th complained of pain in calf of leg, the veins of which were hard and turgid; temperature 105·6°; intense thirst. Was wrapped in sheet wrung out of cold water, and changed frequently; temperature thereby reduced to 104·6°, with marked relief of thirst. 7th April, temperature 103·5°; pulse very small; dark bluish patches observed on chest. Stimulants administered freely. Her husband had been in England for a year. Supposed father of her child, a married man. Was fretting greatly.	Phlebitis.
Class IV.	
Deaths not traceable to any predisposing cause.	
25. Case I.—R. C., aged twenty-seven, second confinement. Delivered, 31st December; died, 7th January. January 2nd, pulse 120. 3rd, a measly rash was observed on the chest. Some abdominal tenderness, which subsided, but subsequently returned. Symptoms of pneumonia set in on 6th, and became rapidly aggravated; had suffered from constant vomiting all through pregnancy. Hyposulphite of sodium administered; had to be discontinued, as it purged.	Pneumonia and septicæmia.
26. Case II.—M. D., aged twenty-four, second confinement. Delivered, 12th February; died, 18th. Had slight *post partum* hæmorrhage. Complained of severe pain in abdomen next day. Died on the sixth day.	Peritonitis.
27. Case III.—A. C., first confinement. Delivered, 20th February; died, 1st March. Labour easy; pulse 130, and abdomen tender day after delivery; appeared to be progressing favourably, but was suddenly attacked with pneumonia on her seventh day; this rapidly proved fatal.	Pneumonia.

Class IV.—*continued.*	Cause of Death
28. Case IV.—M. K., aged twenty-five, first confinement. Delivered, 22nd February; died, 2nd March. Labour tedious (56 hours), from rigidity of os. Second stage occupied but 3 hours. 8 hours after delivery, pulse 120, face flushed. 24th, slight tenderness over abdomen; temperature 105°. 27th, became maniacal; red blush over knuckles. 29th, elbow painful; abdominal tenderness quite gone two days preceding death.	Septicæmia
29. Case V.—A. D., aged twenty-four, first confinement. Delivered, 26th March; died, 1st April. Patient very delicate; very protracted first stage (40 hours); second stage rapid (30 minutes); *had rigor shortly after delivery.* Symptoms of metritis on 28th. Treated by exhibition of quinine and morphia; brandy administered freely. 30th, great tympanitis. Sank very rapidly, and died on her fifth day. Perinæum lacerated; had become very unhealthy for two days previously.	Peritonitis.
30. Case VI.—E. H., aged twenty-nine, second confinement. Delivered, 30th March; died, 7th April. Pain in abdomen on 1st April; pulse quick; tongue dry; diarrhœa set in on 4th; temperature 104·2°; elbow red and painful; back of hand also painful and swollen. Packed in wet sheet, but she seemed to suffer greatly from the shock; pulse became almost imperceptible, and features pinched. Sheet immediately removed; ether injected hypodermically. She rallied, and tongue became quite moist (previously very dry), but she sank and died next day.	Pyæmia.
31. Case VII.—W. S., aged twenty-one, first confinement. Delivered, 1st April; died, 10th. In bad health for more than a month before confinement. Child dead and putrid; had been dead probably for three weeks. 3rd April, hot and feverish. 4th, vomited; a portion of membranes came away with the lochia. 5th, temperature 104·4°. 7th, temperature 104·3°. Four wet sheets applied in succession. Stated that they felt agreeable; temperature reduced to 102°. 8th, better. 9th; symptoms of general bronchitis; chest blistered. Died, 10th.	Bronchitis.
32. Case VIII.—T. B., aged twenty-seven, first confinement. Delivered, 6th April; died, 8th. Waters escaped before admission. First stage occupied 9 hours; second, rapid (45 minutes). Delivered at 4 30, 6th April; 7th, at 7 a.m., was seized with violent rigor, followed immediately by uncontrollable vomiting, which never ceased till death supervened. Sank rapidly; died in 24 hours.	Septicæmia
33. Case IX.—E. H., aged twenty-two, first confinement. Delivered, 3rd May; died, 11th. 5th, pulse 145. Complained of pain, on pressure, over abdomen. Breath had peculiar cadaveric smell. 7th, passed under her, and soon after vomited; features pinched; much tympany; respiration jerky, and long interval between the acts. Sank gradually, and died on 11th.	Septicæmia and peritonitis.

Class IV.—*continued.*	Cause of Death
34. Case X.—M. S., aged twenty-three, first confinement. Delivered, 4th June; died, 12th. Rigor on 5th, followed by tenderness of abdomen, tympany, &c. Became maniacal on 10th.	Septicæmia and peritonitis.
35. Case XI.—T. M., aged nineteen, first confinement. Delivered, 13th October; died, 21st. First stage very tedious (52 hours) from rigidity, with complete inertia in second. Delivered with forceps. Symptoms of peritonitis set in 24 hours after delivery; red patches subsequently appeared on legs; pneumonia of left lung.	Septicæmia and peritonitis.

EXTERN MATERNITY DEPARTMENT.

I regret to say that the statistics of this department of the institution are imperfect and unreliable. In the first instance, the Clinical Clerk, whose duty it now is to visit the patients and record the results, was not appointed till the 1st May, when six months of the clinical year had expired; and even under the improved system, I fear that anything approaching the accuracy of the records of the patients delivered in the hospital will be impossible.

For the following tables I am indebted to Mr. Dobbs, Clinical Clerk:—

Number of natural labours, - - -	547
Difficult, complex, or preternatural, - -	56
Abortions, - - - - -	35
Total,	638
I may here point out that the number of patients attended in their own homes during the preceding year was only - - -	275
Thus, there was as a result of the new arrangements an increase in the year of - - -	363
Of presentations of the upper extremity there were -	0
Of presentations of the lower extremity there were -	19

COMPLEX CASES.

Prolapse of funis, - - - -	3
Hæmorrhage { *post partum*, - - -	16
Hæmorrhage { accidental, - - -	6
Hæmorrhage { unavoidable, - -	2
Twins, - - - - -	9
Convulsions, - - - -	1
Rupture of uterus, - - - -	0
Prolapse of uterus,[a] - - - -	1
Retained placenta, - - - -	11

[a] The os uteri was outside the vulva before labour set in and during its progress.

ABNORMAL CONDITIONS.

Anencephalous monster, - - -	1
Mole pregnancy, - - - -	1
The forceps was applied sixteen times, namely:—	
For prolapse of funis, - - -	1
For tedious labour, - - - -	15
Version performed three times:—	
For presentation of funis, - - -	1
For placenta prævia, - - -	2
Perforation and cephalotripsy - - -	1

Part II.—The Auxiliary Hospital for Diseases Peculiar to Women.

The total number of patients admitted into this Hospital, suffering from the various forms of uterine and ovarian disease, was, during the clinical year, 314. The number would have been larger had not some of the wards been closed during the summer, while the extensive repairs and alterations undertaken by the governors were being carried out; besides, it was not until the month of March that some of the wards in this Hospital, which had previously been used as lying-in wards, were appropriated to chronic cases.

CLASSIFICATION OF CASES.

	Cases		Cases
Abscess of breast	1	Leucorrhœa	4
Abscess of labium	3	Metritis (chronic)	8
Anteflexion	15	Menorrhagia	8
Amenorrhœa	5	Metrorrhagia	5
Cellulitis (pelvic)	12	Ovarian tumours	6
Cancer, medullary	5	Ovaritis	3
Cystitis	2	Pelvic tumours	5
Dysmenorrhœa	16	Polypus	8
Endometritis	32	Phlegmasia	1
Endocervicitis	11	Peritonitis	2
Epithelioma (of cervix)	5	Prolapsus uteri	3
,, (of vagina)	1	Prolapse of ovary	1
Eclampsia	1	Retained ovum	3
Fibroid tumours	9	Retroflexion	18
Fibro-cystic tumours	1	Subinvolution	9
Gonorrhœa	1	Vesico-vaginal fistula	4
Granular Erosion (of cervix)	9	Vaginitis	7
Hæmatocele (pelvic)	1	Vagina duplex	1
Incontinence of urine	1	Vaginal cicatrices	2

I have experienced much difficulty in drawing up the foregoing apparently simple list; the difficulty arose from the fact that in many cases two or three abnormal conditions existed in the same patient. Thus,

in all the cases of polypus, menorrhagia existed. It was also a prominent symptom in many of the cases of endometritis, while subinvolution, anteflexion or retroflexion, and endometritis, were frequently co-existent. The foregoing table must, therefore, be only taken as approximately correct. It has, however, been made with the greatest possible care.

It would be out of my power to give, in a report such as this, even in the most cursory manner, a *résumé* of all the foregoing cases, and I shall content myself, while dwelling on a few of the most important, to point out the principles which guided us in our treatment of certain of these affections.

Dilatation of the Uterus was carried out in 22 patients. The reasons which influenced us in so doing were various; in some the diagnosis of polypus, of retained ovum, or of granular endometritis, was previously made, but in about one-third of the number the operation was undertaken as a necessary step to enable us to decide on the nature of the case. For many years past I have acted on the principle laid down by the late Dr. Tanner, that "when an otherwise healthy woman suffers from repeated attacks of uterine hæmorrhage, which can only be partially or temporarily relieved by rest, astringents, &c., we may be sure that there is some organic disease of the ovaries or uterus;" and the cervix being healthy, that "there is only one plan of treatment which can be adopted with reasonable hope of success, and that is to dilate the os uteri and cervix thoroughly," so as to permit the exploration of the interior of the organ, and "the removal of the source of evil." The method of dilating the uterus is well known to all the members of the Society, and I shall merely say that in the Rotunda Hospital we almost invariably use for that purpose sea-tangle tents.

In three cases dilatation was practised for the removal of the products of conception. The following are the particulars of these cases:—

A. M., aged thirty, admitted 10th April, 1876, married twelve years; has had eight children—the youngest eighteen months old; nursed this child for eleven months; has been in bad health since its birth, suffering specially, since August last, from severe pain in her back, and *since Christmas has had a red discharge almost continuously.* Walking brings on violent bearing-down pains. She was, on admission, in a very debilitated state; the discharge was copious, sanguineous, and fœtid. On making a vaginal examination the uterus was found to be much enlarged, the fundus being thrown forward; the os, which was patulous, being very far back.

The history of this patient's case negatived the idea of the existence of an intra-uterine polypus, but the uterus evidently contained something which acted as a foreign body, and which kept up the weakening discharge. The woman herself believed that she had aborted several weeks

previously. I came to the conclusion that she had been pregnant, and that some portion of the ovum was retained. I therefore resolved to dilate the uterus, and accordingly introduced eight pieces of sea-tangle into the uterus; the os being patulous and cervix relaxed, this was effected without difficulty. A very fœtid discharge escaped on withdrawing these, and before proceeding further it became necessary to syringe out the vagina and uterus with a disinfecting fluid; this brought away several large cheesy-looking masses, which, on subsequent examination, proved to be clots of blood, perfectly decolourised. On passing the finger into the uterus I detected the lower extremities of a fœtus. These were seized with the ovum forceps, and a fœtus of about the third month extracted, which, though macerated, was not in any way decomposed. Some trouble was experienced in removing the placenta from the fact of its being extremely friable, but, with the aid of the ovum forceps, it was all got away. Sharp hæmorrhage followed, which was checked by the injection of water. This patient made an excellent recovery.

In this case we were quite uncertain as to the date of conception. The patient had not menstruated since her confinement, while for sixteen weeks prior to admission she had never been free from a sanguineous discharge. My impression is that she became pregnant soon after the time when she ceased to nurse—namely, about the 1st September, that the ovum was blighted early in December, and that the dead ovum was retained *in utero* from that date till its removal on the 13th April. It is unlikely that pregnancy took place after the hæmorrhage set in at Christmas. That the ovum was dead for a long time was proved from its appearance, and the complete decolorisation of the clots of blood show that they must have been for a long time in the uterus.

Another case was that of M. C., admitted 18th September, 1876. She had given birth to two children, the youngest of whom was eleven months old. She had suffered from uterine hæmorrhage almost without intermission since her last confinement, except during the months of June and July. For the last six weeks this discharge had been constant, sometimes very profuse, and she believed that she had aborted at or about the 1st August. On examination the uterus was found to be enlarged and globular, the cervix soft, and os patulous; being of opinion that some portion of the ovum must be retained, the uterus was dilated, and an ovum of about the 10th week removed.

The third case was that of M. M'M., aged twenty-five, admitted on the 10th September, suffering from profuse uterine hæmorrhage. She stated that three months previously, when eight weeks pregnant, she had a violent attack of hæmorrhage, and she believed then aborted. The present attack of hæmorrhage had lasted fourteen days. The hæmorrhage, on admission, was so profuse that the vagina had to be plugged; this arrested it. On making a vaginal examination the fundus of the uterus,

much enlarged, was found to occupy the recto-vaginal *cul-de-sac*, the os being patulous; the uterus was dilated, and, on passing the finger up to the fundus, a soft, spongy mass was detected. This was removed with the curette, and fuming nitric acid freely applied; the mass removed seemed to be a portion of placenta, much degenerated. This patient left the hospital, quite well, in ten days.

Endometritis.—Dilatation was carried out in eight cases of endometritis, in which a granular condition of the intra-uterine mucous membrane existed. The following is an example of these cases:—

S. D., aged forty-four, admitted 2nd September, has had seven children, and three miscarriages, the last six years ago; has suffered ever since from dysmenorrhagia, with occasional attacks of menorrhagia, which have of late become more severe. Recently the intervals between the periods have never exceeded fourteen days, sometimes being only four or five days, while the flow lasts very profusely for nine or ten; of late, indeed, she has seldom been free from a red discharge. She states that she has been treated for two years for "ulceration of the womb," without benefit.

On examination the sound penetrated to the depth of 3½ inches. When the point reached the os internum much pain was experienced; pressure of the point, too, against the fundus caused pain.

14th September.—Six pieces of sea-tangle introduced; on their removal the finger passed into the uterus detected a rough granular condition of the intra-uterine surface. This was removed with the curette, and nitric acid freely applied.

25th September.—No pain subsequent to the operation. Hæmorrhage entirely ceased.

25th October.—States that she is now perfectly well; has had no return of pain or of the discharge.

Cases of which this is a type are by no means rare, and very little good will be effected by any treatment which does not aim at restoring the intra-uterine mucous membrane to a healthy condition by the use of some strong caustic applied directly to it, while in many cases the use of the curette is essential.

Division of the Cervix Uteri.—This operation was performed five times. In each patient the prominent symptom was dysmenorrhœa; in three anteflexion was well marked, in all endometritis existed, and in each case where the operation was performed it was undertaken as the first step towards the cure of that affection, which in it was, in my opinion, the cause of the dysmenorrhœa. I believe it is seldom possible to cure chronic endometritis occurring in sterile women without having recourse to free division of the cervix.

In this hospital we practise both the bilateral division, as advocated by Simpson, Greenhalgh, and others, and also Marion Sims' operation—

namely, the incision of the posterior wall of the cervix uteri only; the former operation answers very well when the uterus is straight, but is far inferior to the latter in cases where anteflexion exists. Formerly I seldom performed any operation except the bilateral one, using for the purpose Savage's metrotome and Küchenmeister's scissors, but of late I have practised Marion Sims' operation more frequently than the other, with very satisfactory results, being led to do so from the fact that anteflexion so commonly co-exists with endometritis, especially in barren women. Here is an outline of one of the cases:—

S. K., aged twenty-three, admitted 26th September, states that she had never been pregnant, that she began to menstruate at seventeen, without discomfort, and continued to do so till twelve months ago, when the function became painful, and the discharge very scanty, lasting but one day instead of three; suffers at each recurrence of the period from nausea, and sometimes actually vomits; describes the pain as "agonising."

On a vaginal and bi-manual examination the uterus was found to be acutely anteflected, the os was patulous, the passage of the sound, and specially pressure of the point against the fundus, causing great pain; a copious glairy discharge issued from the os. Diagnosis: endometritis, supervening on congenital anteflexion.

28th September.—Cervix uteri divided posteriorly.

16th October.—Menstrual period over; lasted four days. No pain.

9th November.—Has again menstruated, without pain; flow lasted four days. Endometritis treated during the intra-menstrual period by the application of carbolic acid to the interior of the uterus.

Amputation of the Cervix Uteri for epithelioma of that portion of the organ, was performed three times. In one of these cases, in which the disease was in a very advanced stage, the cavity of the peritoneum was opened during the operation, and the patient died in the course of a few hours. The details of this case have been already laid before the Society by me. In the second case the growth was rapidly reproduced. Subsequently, having had the pleasure of hearing Dr. Marion Sims describe his new operation, of following the disease right up into the cervix uteri, and removing every portion of it which can be recognised, I procured his knife from Collin, of Paris, and attempted to imitate him. In the case on which I operated I succeeded without any serious loss of blood, in not only removing the outgrowth, but also in dissecting out the inner surface of the cervix, up to the os uteri, and in removing apparently every portion of the diseased tissue. Some days subsequently I packed the hollow cervix with cotton soaked in a solution of the chloride of zinc. This patient improved greatly for a time; the disease, nevertheless, recurred. I mean, however, as suitable cases occur, to practise this operation hereafter, as it seems to me to be a safe one, and to afford the best chance of prolonging, if not of saving, the patient's life.

Granular Ulceration of the Cervix.—Several cases of the severe form of this affection were admitted during the year; most of these had previously been treated in the extern department without benefit, and in each of these, milder measures having failed, *Potassa fusa* was freely applied, in all with benefit. Our experience in the treatment of this affection is, that nitrate of silver, and even the fuming nitric acid, is insufficient for the cure of the severe forms of it, and that where the cervix uteri is soft and spongy and bleeds on being touched, it is necessary to destroy the whole vaginal aspect of the cervix to a considerable depth. Our custom is to leave in the vagina, after the application of the caustic, a pledget of cotton saturated in glycerine, which tends to lessen any pain or uneasiness which may follow the application. As a rule the slough separates in four or five days, leaving a healthy surface, which heals up in a short time. Our experience of this method of treating the affection under consideration is very favourable.

Double Vagina with Single Uterus.—A remarkable example of this rare affection was admitted in June last. The patient was a woman aged forty-three, who had been married for many years, but had never conceived; menstruation had always been normal, and sexual intercourse neither difficult nor painful, till of late; at the age of forty the catamenia ceased to appear, and not long after she began to suffer from pain in the left inguinal region; this for a time disappeared, but subsequently she suffered from back-ache and from pain and heat in the vagina and at the vulva. On examination a septum was found to run throughout the whole length of the vagina, dividing that canal into two parts of unequal size; it extended over the cervix uteri, the os being situated in the anterior portion, and terminated just inside the labia minora; the os uteri was small and circular, the cervix conical, and the uterus small, giving the impression that the organ had never been fully developed. The woman was suffering, on admission, from vaginitis, and it was for the relief of the sufferings due to this affection that she sought admission.

Believing that much of her sufferings were due to the existence of the septum, which, by narrowing the vagina, appeared to render intercourse painful, I divided it with a pair of scissors throughout its whole length; the septum was dense, and, on being divided, retracted, forming a thick ridge on either wall of the vagina, laterally. Pledgets of cotton, saturated with glycerine, were then placed in the vagina, and she was discharged in a few days. Since then she has presented herself from time to time at the dispensary; the vaginitis has not been entirely removed, and the introduction of the speculum causes much pain, from the fact that puckered-up edges of the septum project into its orifice; as it is passed up the division of the septum does not appear to have materially improved her condition; sexual intercourse is, however, not so painful as formerly. The most remarkable fact connected with this case is that for many

years sexual intercourse appears to have been painless, while as life advanced, and the climacteric period approached, it became absolutely unbearable. I can only explain this by supposing that the septum became more dense as age advanced, and finally narrowed considerably the diameters of the vagina.

Fibrous Tumours of the Uterus.—The number of women the subjects of fibrous tumours presenting themselves at the dispensary or applying for admission into the auxiliary hospital was very great. The great majority of these were cases not likely to be benefited by treatment, and consequently were not admitted. Nine were so, and were kept under treatment for periods varying from a week or two to several months. In this report I have not space to enter into details of the methods employed to arrest hæmorrhage and check the growth of these tumours. I can only say at present that we practised incision of the cervix, the use of the actual cautery, as recommended by Dr. Greenhalgh, the injection of styptics into the cavity of the uterus, and the hypodermic injection of ergot, with moderate success. In none of the cases was enucleation or forcible evulsion practised.

Ovariotomy was performed twice unsuccessfully. In one case death was due to shock, the density of the adhesions rendering the removal of the cyst a matter of the greatest difficulty. In the other cirrhosis of the liver was found on a *post mortem* examination, which, in the absence of any symptom indicating hepatic disease, was not suspected during life.

I much regret that the limits to which I must necessarily confine this report renders it impossible for me even to touch on many interesting subjects. I trust, however, next year to make the report of this department of the hospital somewhat more full than it is on the present occasion.

Surgeon-Major Johnston.—Dr. Atthill has tabulated 35 fatal cases, of which 26 include peritonitis, septicæmia, and pyæmia, and in some cases the original affection is associated with other diseases also. It appears that there were no fatal cases in November; that in December there were 4, in January 1, in February 5, in March 5, in April 6, in May 2, in June 1, and that there were then three clear months until October, when there were 2 cases. Whatever be the name which we give to this affection, which used generally to be called puerperal fever, there seems to have been a particular current of infection, according to the report which Dr. Atthill has laid before us. In December we have 4, in January 1, and, as some of the cases delivered in January died in February, we have 5 in February, and then we have 5 in March and 6 in April, making 16 cases in three months. It would be satisfactory if, according to the practice followed by Dr. Johnston, the wards and the beds in which the cases were delivered, and also the nurses who attended, were given. The period of three months ending in April shows a very

heavy mortality, and it is very suggestive of the state of infection existing in the hospital. I am aware that Dr. Atthill receives the most wretched cases into his hospital, as I also do into mine.

Dr. More Madden.—The series of reports which Dr. Atthill has given us are most valuable; they not only embrace the details of cases of midwifery for which the hospital was instituted, but go into the new science of gynæcology, to which a large portion of the hospital seems to be now devoted with very great benefit. With regard to the questions thrown out by Surgeon-Major Johnston, I believe that puerperal diseases are excessively contagious, and excessively likely to be developed by the bedding together of a large number of women in a puerperal state. I think there can be no doubt that, during the time that Dr. Atthill's report extends over, there has been an epidemic of puerperal diseases outside the walls of the hospital, and that the probability is, that the majority of the women that were treated in the hospital, if they had been delivered in their own homes, would have died there without the comforts and advantages that they enjoyed inside the walls of the Rotunda Hospital, where they had every attention and kindness that women in their state would require. At the same time I think that some of those women might have been alive still if they had been delivered in the squalor and wretchedness of their own homes, where they would not have been poisoned by an atmosphere which, however well the institution may be kept, as far as any artificial system of hygiene and ventilation, supported by all the precautions of advanced science, can go, must nevertheless be injurious. We all know that in the Lying-in Hospital the greatest precautions are taken to insure the most perfect cleanliness and the most admirable hygiene; but, for all that, I think the seeds of fever linger in clothes and vessels, and that, if one woman in a ward suffers from puerperal fever, the others in the same ward are more likely to have it than if they had been in a ward in which no puerperal woman had been delivered; therefore I think that the more advantages are afforded in the way of out-door relief to lying-in patients the greater benefit will be afforded to the class of persons for whom the hospital was founded.

Dr. Henry Kennedy.—It has always appeared to me that there is as much disease outside an hospital as ever reaches the inside of it. It would be hard to give any statistics on the subject, but I constantly hear of cases occurring in private exactly at the time when they occur in the hospitals. If I can judge at all by statistics, the cases clearly appear to be more numerous in proportion outside the hospitals than in them. There is not a time that ever the disease shows itself in the Rotunda Hospital, or any other large hospital of the kind, in which you do not

hear of cases occurring outside, under circumstances, as Dr. Atthill has stated, which preclude the supposition of contagion having had anything to do with them. It is not a week since I heard of a case occurring five miles outside of Dublin. In a large number of cases the women that exhibit the disease are not married; and that has nothing to do with contagion. When I was attached to Cork-street Hospital the way in which the disease showed itself there was most extraordinary. On a morning I would find that several cases of erysipelas had occurred in various wards in a single night. I think we have received proof to-night that puerperal fever is not engendered in the Rotunda Hospital more than in any other institution. I may mention that many years ago I had an enormous experience in making *post mortem* examinations during a severe epidemic which was then prevalent; and in many cases I discovered that there was no peritonitis whatever, but that behind the peritoneum all the mischief lay. About half a pint or so of blood-stained serum would be found in the cavity of the peritoneum, but on investigating farther I would find the whole cellular membrane behind the peritoneum in a state of slough. In other cases there would be a very small amount of peritonitis, but a great deal of disease and mischief in the chest. In other cases the peritoneum would be quite free, but the joints would be affected. That is what we understand as diffuse inflammation; there would be pus in all the joints, and yet the synovial membranes would be perfectly healthy. I agree entirely with what has fallen from Dr. Atthill, and what has been proved by Dr. Johnston's valuable reports.

Dr. Byrne.—I think we ought to have a special meeting to discuss and criticise Dr. Atthill's report fully. Occupying such a position as he does in connexion with a great and noble institution, Dr. Atthill has endeavoured—and I give him credit for it—to represent the results of its working in as fair and honest colours as possible. Still there may be many circumstances in that report which members here to-night have not correctly understood. For my own part, not having seen the report before, I could not follow Dr. Atthill in all the observations that he made; and I do not think it can be properly discussed where it was not in the hands of the members before. I therefore think it would be only justice to Dr. Atthill that we should have another meeting for the discussion of it.

Dr. Denham.—I think an adjournment of the discussion would be very detrimental to the interests of the Society. Members would then lose sight altogether of the matter contained in the paper. In truth, the paper is so elaborate, and the matter contained in it so varied, that it would be impossible to do justice to it in a single discussion. My

impression is, that the report when printed will speak for itself, and that we shall be able to discuss it with more satisfaction and advantage in our own studies than we could possibly do in a meeting like this. It refers to several points of the deepest interest. With respect to the subject of infection, we have a vast deal to learn yet. Every day we meet with cases in which the patient is in perfect health, has every comfort in life, and experiences an easy labour, and yet in the course of ten or twelve hours she is suddenly seized with a rigor and all the symptoms of puerperal fever; and this although her situation is perfectly isolated, and there is no possibility of tracing the attack to anything like infection. On the other hand, we go to a poor, wretched woman, in some hovel or garret, and assist in her delivery in filth and wretchedness, and she has not a single bad symptom. My own impression is, that many patients are delivered with the poison of puerperal fever lurking in their system beforehand. I cannot conceive it possible for a woman to have an easy labour, and to manifest symptoms of puerperal fever in six or eight hours afterwards, on the supposition that she has had the poison instilled into her from the atmosphere she breathes in the hospital. My conviction is, that the poison is lying quiescent in the patients in such cases, and that the effect of the confinement and delivery causes it to break forth.

Dr. Atthill.—Nothing would give me greater pleasure than to have my paper fully criticised, and I consider myself the chief loser by any curtailment of the present discussion. I am a believer in the contagious nature of certain forms of what is commonly called puerperal fever, but I confess that my belief has been very much shaken by my experience in the Rotunda. At the same time, believing it possible for the disease to be communicated by one patient to another, I use every possible precaution, and therefore isolate the patients. As soon as a case of any form of metria occurs in the hospital, it is removed to a separate ward, and put in charge of a separate nurse, and all possible means are adopted of preventing infection. In the next place, we afford every facility for women being attended at their own homes. A woman can be attended either at her own house or in the hospital, according as she likes; and the result of giving this facility has been an increased demand for in-door accommodation. The real question before us is—Are these cases the result of infection contracted in the hospital? Now, during the last twelve months I have seen four cases of so-called puerperal fever in consultation, while not one occurred among my ordinary patients—one case, already alluded to, having occurred in the country, thirty miles from Dublin; another occurred in the mountains of Tyrone, and a third in Rathmines. None of these could possibly have had infection brought to them. Dr. Madden has stated that in large lying-in hospitals he believes the atmosphere to be poisoned.

Dr. More Madden—I did not say the atmosphere. I said that there were germs of the disease which caused infection.

Dr. Atthill—The statement was that the atmosphere became poisoned, and the germs of the disease lingered in the wards. How is it, then, that we have no mortality now? Not a ward in the hospital has been closed for an hour. No patient has been refused admission. No extra precautions of any sort have been adopted. Yet we have only had six deaths within the last six months from all causes, out of some 600 cases. If germs of disease hang about the walls of the hospital, why do not they develop disease? Again, during the months of February, March, and April, 1876, several deaths occurred here. Simultaneously with these we have the death of the lady referred to by me, residing in a perfectly isolated position; and about the same date we heard of deaths in other parts of the country. Without doubt, the death of that lady resulted from self-generated infection. Whatever cause, therefore, gave rise to the disease in the patients in the hospital, we may conclude gave rise to those in the country, and was at work all over the kingdom. We have always large numbers of unhealthy and half-starved patients in the hospital, and, therefore, there must be a greater number of deaths there than in the upper ranks of society. I believe that the vast majority of cases of so-called puerperal fever are self-generated, whether occurring in the hospital or in the country. It is also certain that the discharge from one patient may infect another; but I hesitate to believe in the atmospheric theory of infection. As I have already stated, no means of disinfecting were adopted in the hospital beyond the every-day precautions of cleanliness and ventilation. Therefore, I cannot believe that the germs of the disease were ever in the atmosphere of the hospital.

Case of Pregnancy, complicated with large Uterine Fibroid; Delivery at full time; Hæmorrhage; Recovery. By J. A. Byrne, M.B., &c.

On 21st April, 1876, I was sent for by Dr. Finegan, of Glasnevin, to see a patient living about five miles from town. When I arrived I found that the lady had been delivered of a fine full-grown male child, after a labour not very prolonged. The child had presented by the feet, and although Dr. Finegan used the greatest skill and celerity in managing the labour, the child was dead-born. After the delivery of the child, Dr. Finegan remarked that the uterus did not appear much diminished in size, and he made the usual examination to test for the presence of a second, when, to his astonishment, he did not perceive any presentation, and then alarming hæmorrhage set in. He removed the placenta, and endeavoured to arrest it. In doing so he became conscious that the uterine enlargement depended upon the presence of uterine fibroids. On my arrival the lady was extremely reduced and weakened,

and the hæmorrhage was still going on. The first thing which I did was to introduce my hand into the vagina and thence into the uterus, and in doing so it passed on for a considerable distance, and I became aware of the existence of at least three large tumours, one occupying the fundus uteri, and one at each side. Each was as large as an orange, and there appeared to be some smaller tumours also; they were interstitial, and the structure of them was quite different from that of the neighbouring uterine tissue, being much more firm. The emptied uterus at this time reached almost to the umbilicus, and this enlargement was produced partly by the tumours, preventing, on account of their presence and size the uterine contraction, and partly by the tumours themselves, which were of great magnitude. I injected the uterus with the solution of perchloride of iron, having previously removed some large coagula. By this the hæmorrhage was quickly arrested, and, brandy being given, the syncope was soon over, and an opiate was administered. It is unnecessary to occupy the time of the Society by detailing the subsequent history of this patient; it is sufficient to say that she was attacked by inflammatory symptoms which terminated in phlebitis and swollen leg. She recovered under the care of my friend, Dr. Finegan; and, through his kindness, I had an opportunity of seeing this lady in about two months afterwards. At this time she was quite well, with the exception of a slightly œdematous condition of the left foot and leg, the result of the phlebitis. The uterus was large and extended for some distance above the pubis and into each iliac region, and was irregularly nodulated. She had menstruated once since her confinement, and as the second period had passed, I did not explore the uterus, fearing that she might be pregnant, but contented myself by a mere vaginal examination. The uterine enlargement could be felt in the pelvis, posteriorly and laterally, and was evidently caused by the fibrous masses which protruded themselves into the pouch of Douglas and to the sides. I expected to have had an opportunity of further examination, but the lady did not return. Dr. Finegan has informed me, however, that she has not become pregnant since. She had consulted some eminent men in the city before her confinement—I was informed by her husband—and she had been only a very short time married when conception and pregnancy occurred. She *never* suffered from hæmorrhage.

If I may be permitted I will briefly draw the attention of the Society to some interesting features in this case—

1. The occurrence of pregnancy with so large a tumour, or tumours.
2. The carrying of the fœtus to the full period of pregnancy.
3. The possibility of a living child being born under such circumstances.
4. The arrest of the hæmorrhage under such a complication of circumstances.
5. The recovery of the patient.

It appears to be a wise law of nature that, when the uterus is the seat of those tumours, conception is not a usual consequence, but this is not always the case, and many remarkable instances are on record of pregnancy in connexion with fibroids. It would appear that the possibility of its occurrence depends to some extent upon the situation of the tumour, and also upon its size, and the effect of its size and situation in producing alteration of position in the uterus itself or flexures in the canal, and upon the freedom from attacks of uterine hæmorrhage.

Now, it is possible that in the case which I have described, the situation of the tumours may have kept the uterus *in situ*, or at least may not have allowed much alteration in the relation of its cavity. If there had been only one tumour—say, in the fundus uteri—it is possible that its weight might have caused prolapse and anteversion or retroversion of the uterus, and in this way sterility. Again, if the tumour had only been in one of the walls of the uterus, it might have caused a displacement in the opposite direction, and consequent sterility; whereas by the tumours being, as it were, placed at what appeared to me equi-distances from each other, or nearly so, they acted as supports and prevented much alteration in the relative situation of the different portions of the uterus.

Now we know that fibroids and polypi of the uterus, even when small, are generally incompatible with pregnancy, and when pregnancy does occur they generally lead to abortion, after a very short period of fœtal growth; in fact the want of simultaneous growth of the uterus, and the new development during pregnancy, leads in general to hæmorrhage, and the death of the fœtus, and its subsequent expulsion. It would be a very interesting question to decide, whether a woman labouring under a small interstitial fibroma of the uterus, has a greater or less chance of reaching the full term of gestation, than a woman who is the victim of so large a tumour or tumours as I have described; but not only are we aware that small fibromas or myomas are a most frequent cause of abortion, but also that they are a most frequent cause of subsequent hæmorrhage—hæmorrhage which has often been fatal. It would appear as if the small fibroma prevented any expansion of that wall in which it lay embedded, whereas the larger tumour permitted more expansion.

There are some very interesting cases recorded, not only of pregnancy occurring, but even of multiple pregnancy in women the subject of large fibromata uteri. One of the most remarkable occurred when I was assistant in the Rotunda Lying-in Hospital, during the mastership of my friend, Dr. M'Clintock, which, with the permission of the members and you, sir, I will briefly detail.

The case is fully described at page 117 of Dr. M'Clintock's book on Female Diseases.

A woman, aged thirty-six, was delivered in the country of a female child, dead and putrid. She was conveyed to the hospital forty-eight hours

afterwards, where she was delivered of two more children born alive. She subsequently sank from the combined effects of exhaustion and hæmorrhage; and on examination an enormous fibrous mass 7 inches long and $2\frac{1}{2}$ inches in thickness was found. [Dr. Byrne exhibited a drawing of the tumour.]

In the 14th volume of the "London Obstetrical Transactions," page 227, a very interesting case is reported by Dr. Madge. A woman, forty years, primipara, who always enjoyed good health, consulted him. On examination he made out eight distinct tumours, varying in size from that of a walnut to that of an orange. He diagnosed pregnancy, although extra-uterine fœtation had been previously diagnosed. Pregnancy went on to the full time, and she was delivered by the forceps. After delivery he introduced his hand to remove the placenta on account of hæmorrhage, and he satisfied himself of the existence of a number of tumours. He mentions that in sixteen months afterwards he had an opportunity of examining the uterus, and he found that many of the tumours had become diminished in size.

We see, therefore, that it is possible not only for pregnancy to occur under the unfavourable circumstances accompanying fibromata uteri, but also that in these three well authenticated instances, pregnancy went on to the full period of gestation. We see that in Dr. M'Clintock's case, two living and one dead child were born—a fact of extreme interest; and we see that in the case related by Dr. Madge, pregnancy and delivery at the full time occurred coexistently with many fibroids scattered through the uterus. In Dr. Finegan's case, which I, with his permission, have related, there were three, if not more, very large tumours; pregnancy occurred, and delivery at the full term, and it is very presumable that if this child had presented naturally that it might have been born alive; for we know that in footling cases the delay, particularly in primiparæ, is often attended by danger to the child, and that were it not for this circumstance she might have had a living child.

This fact, then, is of importance to bear in mind—that pregnancy and gestation to the full period are not incompatible with fibroids of considerable magnitude; so that when asked our opinion in similar cases as to the possibility of pregnancy occurring in uterine fibroid disease, we may, unless the situation of the tumour be of the most unfavourable kind, give at all events a cautious one, and one not absolutely destructive of hope.

It was a remarkable feature in this patient's case that she never suffered from hæmorrhage either before or after marriage, never complained of pain during or after menstruation, which occurred at the normal age—never, in fact, enjoyed a moment's bad health; and what led her to consult the medical men after her marriage was the fact of the non-correspondence of her abdominal enlargement and her time of pregnancy, which began to alarm herself and friends.

As a cause of abortion in those cases of tumours of the uterus, Dr. M'Clintock, Dr. Barnes, and indeed most gynæcological writers, dwell upon the fact of hæmorrhage being in general the chief one, so that there is a reasonable ground of probability that in the event of pregnancy occurring in a case where the tumour is even of considerable magnitude, if hæmorrhage does not take place, the pregnancy may go on to its full termination, and the result may be favourable.

The case which I have detailed has a practical bearing also as regards the treatment used to suppress the hæmorrhage. It illustrates the utility of the solution of iron in those cases. This was one in which some fear might have been entertained as to the employment of this remedy, on account of the great size of the uterine cavity, which, by reason of the presence of the tumours, was prevented contracting to the usual *post partum* size. No bad effects, however, followed its use, if we may except the inflammatory symptoms and phlebitis, which, however, may have depended upon other causes, and which might have arisen even had no such application been used. I myself have used the intra-uterine injection of iron in *post partum* cases without ever seeing any bad consequences, although I am aware that dangerous results have followed its use, but I would not hesitate to use it again did I meet with a similar case; and I am certain that, were it not for its exhibition, the patient would not have recovered.

ACTION OF GELSEMIUM.

The *American Practitioner*, for the months of April and May, contains articles by Dr. Isaac Ott, giving the results of his experimental investigations as to the physiological action of this drug. The gelsemium sempervirens is a plant belonging to the natural order, Apocynæ, and grows in the Southern States of America. The following *résumé* gives the author's conclusions:—"1st. Gelsemium sempervirens contains two active bodies; one called gelsemia, the other gelseminic acid. 2nd. Both bodies convulse, but gelsemia is rather a paralysant and gelseminic acid a convulsivant. 3rd. The convulsions in both cases are spinal in origin. 4th. Both bodies do not affect the motor nerves or striated muscles. 5th. Both bodies paralyse the motor ganglia. 6th. Both bodies do not affect the sensory ganglia till late in the toxic action. 7th. Both bodies seem to leave the sensory nerves intact. 8th. Both bodies do not affect Setschenow's centres. 9th. Both bodies first contract and then dilate the pupil. 10th. Both bodies reduce the frequency of the pulsations of the heart. 11th. Both bodies diminish the frequency of the respiratory movements. 12th. The acid only causes a brilliant fluorescence of the humours of the eye."

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

SESSION 1876–77.

President—Richard Ross.
Honorary Secretary—William Whitla.

Dr. Ross, President, in the Chair.

Notes on Two Cases of Puerperal Convulsions, with Remarks on the Treatment.
By B. Spedding, L.R.C.P., L.R.C.S., Ed.

The coincidence of meeting with two cases of puerperal eclampsia within the same week, last summer, induced me to take notes of them at the time, with the view of bringing them before this Society. They are peculiarly interesting, inasmuch as they appear to be typical cases of the two great varieties of this disorder, the first being of the apoplectic kind occuring before delivery, and the other of the epileptic form occurring after the complete termination of labour.

Case I.—On the morning of the 12th June I was called upon to assist Dr. Newett, of Ligioneil, in a case of difficult labour. Upon my arrival Dr. N. informed me that his patient, a very stout, plethoric woman, aged thirty-one, a primipara, had been about two days in labour, first sta , but that during the last twelve hours she had been in convulsions, which were at first tonic, but had then become less severe, although recurring at very frequent intervals. When I saw her she was in an insensible condition, with excessive muscular twitching; pulse about 140, and very feeble. The head was at the brim; the os rigid at the edges, but soft and thin all round. The only chance of the patient's life appeared in immediate delivery, but the *modus operandi* occupied our serious attention. The os uteri would only admit the index finger to the second joint, and showed no signs of dilating. The state of the pulse put blood-letting out of the question; and remembering that craniotomy had a prejudicial effect in such cases, by exciting reflex action and thus increasing the paroxysms of convulsions, we decided upon incising the os sufficiently to enable the hand to be introduced for the purpose of performing podatic version. I should here state that the bowels had been freely opened by doses of pulv. jalap co. and croton oil, and that the patient had been cupped upon the nape of the neck. I put her fully under the influence of chloroform, and Dr. Newett introduced a Lund's abscess knife within the os, and cut backward in the median line to the extent of about half

an inch. He then gradually dilated the os with two and then three fingers. In about ten minutes he was enabled to introduce the hand, and he brought down the feet without much difficulty. The incision did not extend into the fundus, although great traction by the forceps was required to disengage the head. We left her free from convulsions, but semi-comatose, and with stertorous breathing, which continued for eight hours afterwards, when consciousness gradually returned, and I was gratified to learn that she made a good recovery within ten days, without the occurrence of any inflammatory symptoms. I should have said that before labour set in there was considerable œdema of the legs and face, and that the urine contained a large quantity of albumen.

Case II.—On the 19th June last, I was hurriedly summoned to visit Mary Edmonds, a young woman, aged twenty-four, who had, I was told by the messenger, been delivered of her first child that day, about six hours previously. I found her in a severe epileptic convulsion, quite unconscious, frothing at the mouth, face livid, and having to be held in bed by three persons to prevent her falling out. The history I got from her sister was, that she had been always healthy, never had had any fits, and that she had an excellent confinement, being only ill three hours. The urine contained no albumen, and the only cause I could assign for the attack was, that the day before she slipped off the curb-stone and got a severe shake; afterwards she walked home somewhat frightened, and that night it brought on labour, about a fortnight before she expected it. I at once administered an injection of soap, warm water, and turpentine, in the meantime sending in haste for chloroform. The enema produced no apparent effect, the convulsion continuing with great severity for more than half an hour. I then put her under the influence of chloroform, which had a marked effect in controlling the convulsion. A second, however, succeeded the first, which only lasted ten minutes; and at the commencement of the third, I decided, in the extremity, of bleeding from the arm, inasmuch as the pulse was full, or rather bounding, and about 120. This I did to the extent of about 35 ozs. from the right median basilic vein. The fits continued, though severe, and only lasting a couple of minutes. At 11 p.m. I met in consultation the medical gentleman who had attended her in her confinement the same forenoon. He had been out of town during the afternoon, and was much surprised and grieved at the untoward turn the case had taken, having, as he said, rarely attended an easier or more natural first case. We placed calomel and croton oil on the tongue, which the patient could not swallow; ordered a fly blister to the nape of the neck, and sinapism to the chest and feet. She continued convulsed at intervals during the night, and died the following morning at 10 a.m., twenty-four hours after delivery.

With regard to blood-letting in the second case, I have to observe that,

although it is not so generally recommended in convulsion occurring after delivery, I felt justified in trying it in this case, from the following reasons:—The character of the pulse, the absence of any *post partum* discharge, the fact that the patient was unable to swallow any sedative medicine, and especially from the fact that the anæsthetic had failed to produce any permanent effect. Monsieur Charpentier, of Paris, in a valuable thesis, written three years ago, endeavours to show that the mortality in this affection was thirty-five per cent. treated under the old treatment of general bleeding, and only eleven per cent. in those treated by anæsthetics, foremost amongst which ranked chloroform and chloral. The fact that doctors differ is well shown in the opinion of several eminent obstetricians on the question of prognosis in this affection—Paget, Blot, Dugés, and others asserting that eclampsia occurring after delivery is far more amenable to treatment than other forms; while Ramsbotham, Churchill, and other eminent observers hold the very opposite opinion.

On these various subjects, which are pregnant with interest, I await with a degree of pleasure the views of the different members of this Society.

The PRESIDENT opened the discussion with a review of the symptoms and treatment of the affection. He said that owing to the importance of early treatment too much attention could not be paid to the value of the premonitory symptoms, and foremost among these was *headache*. This headache he found was always severe and constant; it was to be noticed in a large percentage of all cases of puerperal convulsions; it was to be noticed, too, at an early date—often, indeed, before dizziness, motes, and other sensations complained of by the patient—next was seen œdema of the face and fingers, and albuminuria. The attack then supervened; at first, tonic contraction of the muscles of the body followed by clonic convulsions, especially of the muscles of the face, and, after an interval of variable duration, partial obliteration of consciousness or coma, more or less complete. This condition of matters generally brought on labour, a process requiring for its satisfactory and safe termination that balance of all the forces found in healthy parturition. He was glad to state that the mortality had very considerably fallen since the practice of free blood-letting had fallen into disuse. As regards the pathology of the disease, there was great room for difference of opinion. He would direct attention, in the first place, to the state of the blood in pregnancy. All observers agreed, to the nature of its composition, that it was "watery," the well-marked anæmia of this condition being familiar to all. Secondly, he would remind them of the altered and increased arterial tension; and, thirdly, of the hypertrophy of the heart. Now, what did these three things produce? temporary cerebral congestion—the principal element

in the disease. This afforded an explanation of how bleeding was sometimes beneficial; there was also œdema of the cerebral tissue, and this effusion pressed upon the vessels and finally produced anæmia of the tissue. He thought, then, that it was high time to give up the practice of bleeding, since it directly produced anæmia of the brain substance; he thought it might be possibly of good in some cases, but he never met such; and he thought the high rate of mortality was chiefly, if not solely, owing to this practice. His own treatment consisted in free and speedy purgation; the form of purgative he found most suitable was that which acted most speedily and efficiently, and he gave it in large and repeated doses. As regards the use of *chloroform*, he highly approved of it in some cases, and the rule which guided him in its administration was, to wait for threatening convulsions, and anticipate them with the anæsthetic. *Chloral hydrate* he found very useful sometimes, especially in the *post partum* variety of eclampsia. Hypodermic injection of morphia he had used, and seen used with good results, its chief advantage being the rapidity of its action, and the ease with which it could be administered. The most important and serious part of the treatment was, what to do with the uterus and its contents. He would say, rupture the membranes, and induce by all means speedy contraction of the organ; he did not like to interfere with the os. The best rule, he thought, that could be laid down for this part of the treatment was, as soon as possible, to empty the uterus.

Dr. F. E. Beck said he never bled in convulsions coming on, during, or after labour. He had seen cases where this treatment was adopted, and it seemed to him with anything but good results, so that he never did intend to extract blood. As regarded the pathology of the disease, he believed in the reflex theory, which seemed to him the most rational and satisfactory. He had now attended upwards of 4,000 cases of labour containing several (he did not recollect how many) cases of puerperal convulsions, and, he was glad to say, he never lost a case from this disease. He believed in purgatives, and in watching for symptoms; if we looked out in every case for the first warnings of the attack, our treatment, he believed, would be much more satisfactory and successful.

Dr. J. W. Browne said he believed the pathology of the affection was almost entirely indentical with that of Bright's disease in the acute stage. Doubtless, very good authorities differed from this—a circumstance which lead him to believe that there might be two classes of the disease. He detailed some cases which he thought supported this view, one of which the ex-President, Dr. Wheeler, had seen with him. He hardly thought he could say that bleeding was unsuitable in every case. Doubtless, recoveries were recorded. The difference in the mortality did

not necessarily depend upon the disuse of the blood-letting; in some hands it was succeeding even yet.

Dr. J. W. Smith said that the President had not referred to the uræmic theory of puerperal convulsions. No doubt, cases of this affection, when no albumen has been found in the urine, had been recorded, and he supposed it was to such that the theory advocated by the President referred. Although he did not deny the occasional occurrence of such cases, he looked upon them as exceptional and comparatively unimportant. In his own experience he had met with no case in which the urine did not contain a large amount of albumen, and was also scanty. He believed that, in the great majority of attacks of puerperal eclampsia, the kidneys were in a state of passive congestion, or in a condition very similar to acute Bright's disease. This condition he looked upon as resulting from the mechanical pressure produced, by pregnancy, on the renal veins and inferior cava. In support of this opinion he referred to the fact of the frequency of eclampsia in primiparæ when the parts are resistant, and to the fact that the albumen does not appear until the later period of pregnancy, when the pressure on the veins is greatest. He had seen cases in the later months of gestation where, the urine being scanty and albuminous, intense headache and slow pulse appeared to indicate that convulsions were imminent, and where they were averted by free purgation, mustard poultices to the loins, and such other treatment as would be adopted in similar conditions in Bright's disease. As regards the cases which had been brought before the meeting, and which had originated the discussion, he could not agree with the treatment pursued. He certainly believed that in all these attacks it was desirable to empty the uterus with as little delay as possible, but in many cases labour had not yet begun, or had but little advanced, and a precipitate attempt to deliver would be attended with great danger both to mother and child. Blood-letting had been recommended in these cases by many eminent authorities, but he never used it, and had no reason to regret that he had not done so. He had lately seen three cases in consultation. In the first the patient had suffered from convulsions in her first pregnancy. She again became pregnant, and at the end of seven months anasarca appeared with albuminous and scanty urine. Two days afterwards convulsions set in, but no sign of labour. The bowels were freely opened, the membranes ruptured, and chloral given by enema. The fits recurred at longer intervals and ceased entirely 36 hours before the birth of a living child, which took place three days after the first convulsion. The urine of this patient was repeatedly examined after her first pregnancy, and was quite free from albumen. In the second case the patient's urine became albuminous in the last month of pregnancy, and she had a convulsion soon after labour commenced. The bowels were acted upon, and the

membranes ruptured; there was no recurrence, and she was delivered in a few hours of a living child. In the third case the patient, when seen, was comatose, and craniotomy was performed. The convulsions continued for several hours after delivery and then ceased, the patient becoming quite conscious and promising a good recovery, but congestion of the lungs set in on the 4th day, and death occurred in 48 hours. Albumen, no doubt, was occasionally found in the urine of pregnant women, and no evil results followed, but he had seen no case of puerperal convulsions when it was absent from the urine.

Dr. T. K. Wheeler agreed with Dr. Smith. He had seen no case of puerperal convulsions in which there was not more or less albumen in the urine, generally a large amount, and he, therefore, believed that the kidneys were at fault in many, if not all cases. His first case occurred about 25 years ago; he had met many since then, and all were primiparæ except one. He detailed the particulars of a patient who had convulsions in one labour, and next time showed all the symptoms—albuminuria, anasarca, &c., but with free purgation no convulsions followed. His experience was altogether against blood-letting; he became early influenced in this way by hearing a paper which the late Dr. Pirrie read before the Society many years before. His practice was to induce labour, losing no time in having the uterus emptied, and he purged freely. Of the various drugs which he had tried with this intention, he had given all up for croton oil—it was the safest and speediest, and by far the most effectual. The form in which he generally administered it was:—2 drops with 1 drachm of compound jalap powder in 8 powders; 2 immediately in wafer paper, and the remainder to be given as circumstances indicated. These he looked upon as the main points; then the administration of chloroform, as the President had recommended, he found very useful in modifying the frequency and force of the convulsions. Believing that the explanation of the eclampsia lay in its uræmic character, and that the convulsions only occurred when the urea was changed into carbonate of ammonia, he had tried tartaric acid as an antidote, and was sometimes struck with the rapidity of its action, but it was not to be relied on. Benzoic acid he thought more favourably of; in addition to its acid reaction, it stimulated the renal organs, and in that way often proved very beneficial.

Dr. Whitla (Hon. Secretary) had heard the remarks of the President with interest, especially those touching upon the pathology of the disease, which, however, he did not agree with. But he thought it a step in the right direction, as he had not once referred to the kidneys. There were few diseases or conditions upon whose pathology a greater variety and difference of opinion existed; indeed, in looking over the history of the

subject he found that most of the organs of the body had been, at one time or other, seized upon as the parts at fault. Excluding those cases where pregnancy supervened upon Bright's disease, much, he thought, yet remained to be learned. He had satisfied himself that a study of the functions of the liver would throw much light upon many such cases. The albumen of the food, *after its absorption*, must be changed into colloid albumen, else it will pass out of the vessels as readily as it gained admission into them—in other words, crude albumen must be assimilated to the albumen of the blood, otherwise it cannot circulate with it, but is instantly picked out by the kidneys, and washed away in the urine. This assimilating process takes places in the liver. Now, anything which interferes with this function of the liver prevents the albumen undergoing the necessary change, and determines its appearance in the urine, where it is readily detected, leading constantly to the conclusion that these organs are the seat of the disease; while, if rightly interpreted, he thought it was but evidence that they were fulfilling their function efficiently. In puerperal eclampsia were seen the very conditions which would be expected to disturb the functions of the liver, especially in first cases. Speaking of the actual cause of the convulsions and coma, he referred to a paper which he read before the Society upon "Uræmia in Liver Affections" (*Dub. Monthly Journal*, February, 1876). The liver manufactured the urea out of the effete products of wear and waste, the office of the kidney being merely to throw it out after its elaboration. Consequently, when this function of the liver was deranged, these products were not reduced to urea; but the process stopped short, and intermediate compounds—tyrosin and leucin—were formed, substances which the kidney could not so easily eliminate, and which, therefore, accumulated in the blood and gave rise to symptoms similar to poisoning by urea, from which substance, in chemical composition and physiological effect, they differed little, and might practically be regarded as modifications, possessing lesser solubility. In respectfully submitting this theory to the consideration of the Society, he ventured to hope that they would see in it a satisfactory explanation of some cases of puerperal albuminuria with convulsions otherwise difficult to clear up. As regarded the difference of opinion about treatment, this might be easily explained—one authority strongly condemning bleeding as almost certain death, while recommending copious and excessive purgation. He saw no difference in such cases: one bleeds by the bowel, while the other opens a vein, and good results might follow each. Either would effectually help to unburden a loaded liver in its action.

Double Fracture of the Lower Jaw treated with Silver Suture. By J. W. Browne, B.A., M.D.; Surgeon, Belfast Royal Hospital.

J. M., a carpenter, aged twenty-two years, was received into the Royal Hospital under my care upon the 25th September, 1876, suffering from a double fracture of the lower jaw, caused by a blow which he had received during a drunken row ten hours previous to admission. Upon examination the house-surgeon found that there was a double fracture—one being vertical, and upon the left side of the jaw, and close to the symphysis; the other oblique, and situated at the angle of the right side. The mucous membrane in the neighbourhood of the angle was extensively lacerated, and there was constant bleeding from this point. The tissues over the region of the hyoid bone and thyroid cartilage were swollen and tense. The patient complained of great difficulty in swallowing, and breathing was much impeded. The right side of jaw was depressed; the teeth hung one inch below the level of the teeth upon the opposite side. The hæmorrhage was checked by the local application of tinct. ferri, and evaporating lotions were ordered to be applied over the upper part of the neck and face; he was also ordered a mixture containing sulphate of magnesia, tartar emetic and liq. morphiæ. No splint or bandages were used to keep the fragments in position, as the most trifling pressure caused a sense of suffocation. During the following six days there was high inflammatory fever and severe constitutional irritation. The respiration was seriously affected—so much so that I told the house-surgeon to be prepared to perform tracheotomy. Upon the eighth day I endeavoured, by means of the usual gutta-percha splint, to get the fragments into position, but without success, as the patient was still unable to bear the slightest pressure. Upon the twelfth day the inflammatory symptoms had subsided, and not being able to advance the teeth to the proper level by means of the usual appliances, I determined to treat the case by means of a silver suture. The patient having been chloroformed, the central and left lateral incised teeth were extracted. With a shoemaker's awl two holes were drilled, one upon each side of the vertical fracture, as low as possible in the body of the jaw, so as to allow of a good purchase being made upon the fragments when the suture would be introduced. One end of a medium-sized piece of silver wire was passed through one of the openings and carried into the mouth; the other end of the wire was carried through the second opening, so that in front of the jaw there was a loop of the wire, the free ends being in the mouth. By making traction upon the ends of the wire, the fragments came into fair position. Then, by means of the wire twister—used by Baker Brown in cases of ovariotomy—the ends of wire were very firmly twisted; the loop in front of the jaw was brought well home; the fragments then came well into position. The twisted wire, which was now close to the

frænum linguæ, was cut off closely, and a piece of lint placed over it to prevent the tongue being irritated. Ten weeks later the wire was removed by cutting it across upon the inner side of the jaw, and making traction with a pair of necrosis forceps. Complete union had taken place, and the teeth occupied their normal position. There was a little thickening in the neighbourhood of the fractures, which would be absorbed in short time.

Dr. Ross congratulated Dr. Browne upon the issue of his case. He said he exhibited great originality in the treatment, showing his readiness to meet troubles as they presented themselves.

Dr. Beck would not use the awl so freely. He recommended the use of a small trochar and canula, such as he used for perforating the lobule of the ear.

Dr. Dempsey agreed with Dr. Browne about the great difficulty in maintaining the fragments in position by the old gutta-percha splint. He had treated a case where this was nearly impossible.

Dr. Wales was pleased with the treatment. He said the result commended itself, and he saw no reason why the same course should not be instantly adopted if the older treatment failed in keeping the fragments in position.

Dr. M. Moore found that the force which caused the fracture in these cases caused more injury to the soft parts, and with him this seemed the difficulty to be contended with. He did not object to any treatment which was sufficient to hold the fragments in position. He had never met with a case in which the milder methods failed him, consequently he had no experience himself in the wire suture. He thought that cases would now and then turn up which no experience would meet, and these must be treated by other methods than those generally laid down.

TREATMENT OF CATARRH OF THE BLADDER.

Edlefsen (*Deutsches Archiv f. Klin. Med.*, Bd. xix. Heft. 1) recommends the use of chlorate of potassium in acute as well as chronic vesical catarrh. It rapidly diminishes the proportion of pus in the urine, lessens or even removes the subjective troubles, and keeps the urine acid. Edlefsen recommends this remedy in these cases more particularly when oil of turpentine, usually a very efficient remedy, is contra-indicated; thus, in co-existing catarrh of the stomach, gastric ulcer, or nephritis, he prescribes ol. terebinth. rectif., in doses of ten drops three or four times a day in capsules. The chlorate of potassium he prescribes in solution—fifteen to three hundred parts water; a tablespoonful in water every two or three hours.—*Phil. Med. Times.*

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

President—Thomas Hayden, F.K.Q.C.P.

Secretary—E. H. Bennett, M.D.

Cancer of the Stomach.—Dr. Finny said: This is a specimen of medullary cancer of the *cul-de-sac* of the stomach, with secondary cancer in the liver, &c. The case is further remarkable by terminating by copious hæmorrhage. The patient was a labouring man, aged fifty-six years, who was admitted, for the first time, into the City of Dublin Hospital, in February last, suffering from dyspeptic symptoms and a troublesome eczema genitale of the left leg. He was well nourished, and, though sallow, free from that haggard look which generally betrays cancer of the stomach. He had been ill for a couple of months, his chief complaints being constipation and flatulence. His abdomen was much distended, but physical examination failed to discover the existence of any tumour. He winced on deep pressure of the left hypogastrium; and the stomach itself was very large and extended up under the ribs for some inches, as high nearly as the sixth rib, in the axillary line. His appetite was good—in fact, too large for the restricted diet on which it was necessary to place him at first. After a time he was allowed meat. Under a treatment by bismuth and nitrate of silver, he recovered sufficiently to leave the hospital in April, expressing himself much better and stronger. During the six weeks he was under observation he had no severe vomiting or hæmatemesis. For three months he attended the external department of the hospital, not being strong enough to go back to his work. After that he found himself weaker, and, being too poor to remain out, I admitted him a second time, in July. Except that he looked thinner, and said that he was weaker, there seemed to be little change in his condition. There were no new physical signs, either in connexion with the stomach or of any other organic disease. He stated that before his admission he vomited a couple of times, and that his stools were black. Except on the night he died there was no return of the black stools, although they were carefully examined, and as he was taking iron before re-admission it was probably the result of some ferruginous tonic. He generally lay quietly in bed, making no complaints, his favourite position being on his right side, though he very often turned on his left side. His diet was, at first, milk; but afterwards, in the absence of any counter-indications, it was changed to meat at his own request. On the 30th of July he expressed himself very comfortable, and took his dinner as usual, about 1 o'clock. About half-

past 2 he complained of some pain, and seemed to become cross and irritable towards the nurse. Towards the end of that day he passed a dark stool of tarry colour and consistency, and shortly afterwards he vomited about half a spitting-cupful of florid blood. Soon afterwards his bowels were again moved, involuntarily, the evacuation consisting of black tarry matter. He became restless and delirious, striking at the nurse, and complaining bitterly of cold. A second small hæmatemesis now occurred; his pulse ran up to 140, and became very small—it was evident that he was losing blood very freely. Ergot and turpentine were administered by the mouth, and hypodermic injections of ether and liquid extract of ergot were practised, but without success, and he died at 10 o'clock p.m. on that night.

On opening the stomach next day, it was found to be of a bluish colour and full of black clots, in which there was several pieces of unchewed and undigested mutton. The whole intestinal canal from the stomach to the rectum was loaded with blood. The stomach itself was largely distended, as it had been during life, and was drawn up underneath the left hypochondrium, the *cul-de-sac* being drawn towards the spleen, and the under-surface being turned towards the tail of the pancreas, to which it was slightly adherent, as well as to the under-surface of the diaphragm. The stomach was so soft that in taking it out it lacerated. On being opened it presented a very horrible appearance. The great *cul-de-sac* and curvature of the stomach were a broken-down mass of cancer. There were, in some places, regular excrescences, and, in others, black, soft, spongy masses. The surface of the stomach, when fresh, was deeply tinged with blood; the great *cul-de-sac* was turned into a broken-down soft mass, and the curvature of the stomach was fringed for some distance with the same blood-stained spongy outgrowths, presenting a remarkable and peculiarly disagreeable appearance. On making a dissection, we found that the pancreas was adherent to the cancerous mass in the stomach, just where it reaches the spleen. Although the splenic artery runs through the cancerous mass, it and the splenic vein are perfectly intact. On turning the stomach and looking through it, we found this aperture in the wall of one of the branches of the splenic artery, as it ran through the adhesions, and this, I believe to have been the seat of the fatal hæmorrhage. There are many points of interest in the case. First, in a diagnostic point of view, contrasting the case with chronic gastric ulcer, Andral states the only certain sign of gastric cancer of the stomach is the existence of a tumour. This evidence of a tumour, which is generally absent in medullary cancer of the stomach, or, indeed, in any cancer attacking the cardiac end of the stomach, was wanting in this case. Another difficulty in the diagnosis was the absence of some of the usual symptoms of the disease. Not only was there no great pain complained of, and no vomiting of mucous fluid or blood, but from March to July his

appetite was good, and he had none of that burning, dragging, gnawing pain, which is so common in cancer, nor was there pain following the introduction of food into the stomach. This is a feature of great rarity, as Brinton states that pain is present in eleven out of twelve cases. Again, he had not the apathy or emaciation which so often accompany malignant disease of the stomach. Nay, further, the copious hæmorrhages of which he died occurred to a much larger extent by the rectum than by the mouth; a feature which pointed rather against than in favour of the view that this was a case of gastric ulcer or cancer. Again, the erosion of the large vessels is indicative, according to Niemeyer, of chronic gastric ulcer rather than of cancerous disease of the stomach. The rarity of the symptom of copious hæmorrhage is borne out by the statistics given by Brinton, according to which it occurred in only 4 cases out of 374, or about 1 per cent., and even these came from the pyloric end of the stomach; whereas, in gastric ulcer, death by copious hæmorrhage occurs in 5 per cent. of the cases. That the splenic artery should have been the source of the blood, is one of the rarest of all occurrences in cases of gastric cancer. The case is also rare in this respect, that it is an example of medullary cancer attacking the fundus and great curve of the stomach, the most usual point of attack being the pyloric end engaging the lesser curvature. In this case the cardiac end of the stomach just escapes engagement of the cancer, while the *cul-de-sac* and great curvature itself is turned into this broken-down medullary cancer, which evidently, beginning in the submucous tissue, made its way through the muscular tissue and the subserous, and was on the point of making its way into the peritoneal cavity, so that if the patient had lived longer it is most probable he would have died of fatal peritonitis. The cancer was not confined to the stomach, for you see here a portion of the left lobe of the liver with a secondary deposit of one nodule in it, the size of a hazel nut, which on section shows the white creamy appearance. The mode by which cancer thus infects the liver is, I believe, by embolic plugging of the vena portæ. It is not easy to understand how such an extent of copious hæmorrhage from a large vessel into the stomach could have existed for eight or nine hours without vomiting to any extent; but, perhaps, this may be explained by the fact that the cardiac end of the stomach having been so thoroughly disorganised by the cancer, and the muscles having been eaten away and destroyed, the contractile power of the organ, sufficient to produce vomiting, was wanting.—*January* 13, 1877.

Excision of Knee-Joint.—Mr. Tyrrell said: Some few meetings a go I presented to the Society a cast of a knee before operation, and the portions of bone removed by operation from a boy aged seventeen; and I then took occasion to mention, that probably before the session was over

I would have an opportunity of exhibiting a cast taken after the operation. I do so now, and I am confident that the contrast between the two casts is remarkable. At present the youth is quite well, the wound has healed, his leg is straight, and he walks without crutch or stick. I exhibit to-day another specimen of diseased knee-joint, for which I performed excision of the knee on Wednesday last. The patient is a girl of ten years of age; she came to the Mater Misericordiæ Hospital some time since; she was unable to put her foot to the ground; the knee was bent, swollen, loose; tibia partially dislocated backwards. The disease was of two years' standing. As I deemed all treatment directed to restore the functions of the joint useless, I excised it. The parts removed show that the joint was disorganised; the ligaments, some were gone, the others softened. The cartilage was removed from the tibia and the head of the femur. The patella was not diseased. The cast on the table shows the appearance of the knee and leg. So far the patient has done well. The operation is an easy one—with me a most satisfactory and safe one, and one which really is not attended with much constrained confinement to the patient. After two or three days a patient can sit up in bed, move from side to side, and all the dressings required are of the most simple and painless description.—*January* 13, 1877.

Mitral Stenosis and Functional Aortic Regurgitation.—Dr. Nixon said: These are the thoracic viscera of a man aged thirty years, who was admitted into the Mater Misericordiæ Hospital on the 30th of last September, under Dr. Tyrrell, suffering from syphilitic periostitis. About the early part of November he awoke at night with great pain in the left side of his chest. He had an attack of vomiting, and considerable distress in breathing. Dr. Tyrrell, recognising the case as one of heart-disease, sent the patient to the medical side of the hospital, where he came under my care. When I saw him the physical signs of mitral stenosis were very well marked. There were very distinct pre-systolic bruit and pre-systolic fremissement; the murmur terminated in a sharply-defined first sound. At some distance to the right of the apex of the heart a distinct systolic murmur was heard, and following the second sound over the aortic valves another murmur of a rough character. In fact, the murmurs recognised at the base of the heart were those usually met with in aortic patency, *bruit de scie.* The patient had at this time severe hæmoptysis, severe pain in the left side of his chest, and corresponding to the seat of the pain he had some small crepitation. On the 15th of December he got varioloid, and was admitted into the small-pox wards. Sharp fever set in, his temperature being 104°, his pulse 186, and his respirations 60. He had delirium of a more or less violent character. In the course of this illness he got lobular pneumonia, accompanied by hæmoptysis, results of hæmorrhagic infarction of the lung, and he died on the 23rd of

December. I may say in reference to the morbid specimens that they presented no lesions whatever characteristic of small-pox or varioloid. The left lung was compressed, and there was a considerable quantity of fluid in the left pleural cavity. The serous membrane, as you can observe, is considerably thickened. The right lung presents in parts very good examples of hæmorrhagic infarctions of the usual minie bullet shape. Towards the root, the lung is solidified in the stage of red hepatisation. On opening the heart and examining the left cavities, we found the left auricle considerably dilated, and its walls hypertrophied. The left auriculo-ventricular opening presented a good example of the funnel-shaped mitral valve, with very considerable contraction of the orifice, which merely admits the tip of the little finger. The cavity of the left ventricle is normal in size, but, as is usual, there is some attenuation of its walls. The right side of the heart is considerably dilated and hypertrophied. The special point of interest in the case has reference to the character of the physical signs of the mitral disease which existed. I mentioned that there was a pre-systolic murmur and fremissement, and that the murmur was wound up by a very sharply-defined first sound. It is well known to the members of the Society that the physical phenomena associated with mitral contraction vary very much. You may have (1) mitral contraction without any murmur, (2) with a systolic murmur, (3) with a pre-systolic murmur succeeded by a systolic murmur; and, lastly, (4) as in this case before you, with a pre-systolic murmur, terminating with a sharply-accentuated first sound, which, as you are aware, is frequently mistaken for a second sound. In connexion with this point Dr. Balfour says that it is possible by the physical phenomena to diagnose what he terms the diaphragmatic mitral valve from the funnel-shaped valve. Dr. Balfour states that in the former the usual signs met with are—pre-systolic murmur, succeeded by systolic murmur, or, as he has recorded in some cases, simply the systolic murmur. He ventures to predict that in cases where you meet with pre-systolic murmur succeeded by a well-defined first sound, the condition existing is a funnel-shaped mitral valve. He has had no case, however, to substantiate his view on this matter; and this one may be interesting in relation to the point. There is some interest also in the case in connexion with the systolic murmur not heard over the mitral area, but towards the area. I consider that from the inelastic state of the valve during the efflux of blood from the ventricle into the aorta, a more or less irregular condition of the arterial zone was produced, which led to the development of fluid veins in the blood, thus producing a systolic aortic murmur, not depending on aortic disease, but on disease of the anterior segment of the mitral valve. The murmur following the second sound which existed in this case, does not seem to have depended on any disease of the segments of the aortic valve, but was probably due to the condition of the aortic zone which

produced the systolic murmur. The President has pointed out that in certain cases where an aneurism of the aorta exists immediately above the aortic tendinous zone, a post-diastolic murmur may be produced from insufficiency of the valves, though they be texturally sound. I think the traction upon the aortic zone by the rigid anterior segment of the mitral valve acted in a similar manner in this case in rendering the arterial valves more or less incompetent.—*January* 13, 1877.

Aortic Aneurism.—Dr. Grimshaw exhibited specimens from a patient who died in Steevens' Hospital on January 1, 1877. He said: George P., aged forty-seven years, a railway policeman, was admitted to hospital on June 14, 1876; married, and had two children; had been in the army for twenty-three years; had served abroad for fourteen years; had been, as a rule, healthy, but had suffered from dysentery, ague, and syphilis. There was otherwise nothing remarkable in the medical history of the patient's life up to the commencement of his present illness. He stated that about three months previous to admission to hospital he felt a sensation of pulsation between the shoulders, and was also troubled with a burning pain, and soreness in the left side (about the fifth and sixth intercostal spaces). After a short period he noticed a tumour which, when touched, produced internal pain. This was the condition of things about a month before admission. The pain and soreness in the vicinity of the tumour disappeared, but the pulsation remained. He was not aware of having ever suffered from a strain likely to injure an internal organ. When admitted, it was found that a pulsating tumour was situated between the inferior angle of the left scapula and the spine; its base was almost circular, tolerably prominent, and the edges well defined; the diameter two inches and a half. The walls were apparently very thin, the pulsation very well marked, and the tumour free from tenderness. There was a distinct double murmur audible over the tumour; there was increased force and area of pulsation in the cardiac region, but at first no abnormal cardiac sounds could be detected. The increased cardiac impulse could be felt not only over the region of the heart itself, but also over the whole of the left side of the chest and upper part of the abdomen, thus exceeding the limits usually affected by a hypertrophied heart. The inference drawn from these signs was that there existed a large aneurism of the descending aorta, occupying the lower part of the chest, but the idea of a second aneurism did not suggest itself. This is not the place to discuss the treatment which was employed, but the result was that the pulsations were materially diminished, the tumour did not increase externally, some consolidation apparently took place, and the patient improved. Frequent examinations over the anterior portion of the chest and abdomen showed a steady increase in the pulsations, which was chiefly attributed to the increase of the tumour in an anterior direction.

At two months before the patient's death, murmurs were developed over the cardiac region, that at the apex of the heart being particularly well marked, and afterwards found to be dependent on incompetence of the mitral valves in consequence of dilatation of the heart. There was a steadily-increasing area of dulness in front, but how much of this depended on the aneurism, and how much on cardiac hypertrophy, we could not say. The patient was very quiescent until a month before his death, when he began to complain much of pain around his ribs, manifestly owing to the interference of the tumour with the nerve originating from the spine, and possibly to pressure on the spinal cord itself. His feet now began to swell, and he expectorated considerable quantities of blood. On inquiry we found he had expectorated small quantities of blood on former occasions. On examination we found a considerable amount of dulness over the base of the right lung, particularly behind. We did not wish to subject the patient to the risk of a very minute examination of the chest, but it was quite evident that a large portion of the right lung had become consolidated. The fluid expectorated was almost pure blood, and this, together with the knowledge of the interference with the cardiac circulation, made us conclude that apoplexy of the right lung had occurred. This opinion was confirmed by *post mortem* examination. Before his death, which took place on January 1st, his respiration became much interfered with, his face becoming so livid that his nose presented an almost gangrenous appearance. The *post mortem* examination revealed the following state of things:—The body seemed badly nourished, and of a yellowish tinge; rigor mortis was well marked; recent fluid effusion into both pleural cavities; both lungs congested; lower two-thirds of the right lung consolidated by hæmorrhagic infarction; liver harder than normal, and has a tendency to nodulation; kidneys hard and slightly congested. The heart was enormously distended; the pericardium was adherent, only a small portion of the membrane being free. There was no valvular disease, but all the orifices must have participated in the general dilatation of the heart. The aorta was found to be extensively diseased. A small aneurism, which had not been recognised during life, was found to occupy the commencement of the descending portion of the arch of the aorta. About one inch and a half further down was found the large aneurism which had been diagnosed as forming the tumour. Between these two aneurisms the inner surface of the vessel was studded with calcareous spicula, some sharp as needles, and projecting about one-eighth of an inch into the vessel. Calcareous deposits were scattered in every direction along the wall. The aneurism had eroded the ribs behind in the situation indicated, and had cut its way almost into the spinal cord. The tumour must at this point have exercised some pressure upon the spinal cord, although the cord does not appear to be injured to any appre-

DR. GRIMSHAW.—AORTIC ANEURISM.

ciable extent. The wall between the aneurism and the cord at this point was extremely thin; the sac was filled with coagula. On making a section through the posterior wall of the sac and the spinal column, a most remarkable appearance presented itself, which is well shown in a woodcut copied from a photograph kindly taken by Mr. Hayes, one of our pupils at Steevens' Hospital (see figure). At three separate points, *a*, *b*, and *c*, the aneurism had cut its way into the spinal cord, and in each case the course taken seems to be upon the same plan. At *a* the section of the cavity formed has a trifoliate form, and the central leaflet, as it were, occupies the position of the inter-vertebral substance between two vertebræ, the lateral leaflet having invaded the bodies of the vertebræ above and below. It is the central portion of this cavity which had perforated the spinal canal, and pressed upon the cord. At *c* the section presents a similar aspect, the inter-vertebral substance being again the chief portion attacked, the body of the superior vertebra being invaded in a manner similar to that at *a*, the body of the lower vertebra being but slightly attacked. At *b* a similar but not so regular a cavity is formed. In every case the intervertebral substance has chiefly suffered. The pulse in this case was very remarkable, being double at the wrist, as shown by sphygmographic tracings. The pulsation of the sac was always double, frequently triple, and sometimes even quadruple in character. The distribution of the pulse is not very easily explained, and indeed the disturbance of the circulation was of so complicated a nature that it seems useless to attempt to refer each element of the tracing to its proper origin.—*January* 20, 1877.

Uterine Diphtheria.—Dr. Atthill said: The specimen which I have to show is one of considerable interest both in pathological and chemical aspect. It was removed from the body of a patient who died recently in the Rotunda Hospital. She was admitted late on the evening of the 9th of this month, and had a rapid labour. The child was still-born, and had evidently been dead for some days. On the day following her delivery she appeared to be quite well; but, on the morning of the 11th, thirty-six hours after delivery, she complained for the first time of a pain in her ankle, and, on being questioned, she gave the following account of her present condition:—Her health had been good, she said, up to the day of her labour. On that day about noon she had a rigor which was so violent as to compel her to go to bed. Soon afterwards, perceiving symptoms of labour, she got up and came to the hospital. She then had a natural labour. The next day, although stating that she was well, she had, she said, suffered from sharp pain in the right ankle; however, she did not complain of it until the day following—viz., thirty-six hours after her delivery. On examining her ankle it appeared puffy and swollen, and there was a slight blush of redness on the surface. Her pulse at that

time was 126, and her temperature about 101°. Fearing pyæmia, I put her upon five-grain doses of quinine with opium. Her condition, however, became rapidly worse; her abdomen swelled; she complained of pain all over it, and she sank rapidly and died on the 12th, four days after delivery. The swelling in the ankle had entirely disappeared before her death, and no other joint was affected. A *post mortem* examination was made within twelve hours of her death. The following were the appearances presented:—*Rigor mortis* well marked; abdomen enormously distended; on opening it a quantity of semi-purulent matter escaped with the serum, which was abundant. The entire peritoneum was much congested, especially on both surfaces of the great omentum. No adhesions had been formed. The liver was of the natural size and healthy. The uterus was much congested; the os was patulous, and the substance of the cervix thickened; the interior of its cavity was filled with a dark grumous fluid. On cutting open the uterus the whole of its inner surface was seen to be covered with a dark gangrenous layer, which in appearance was very like a diphtheritic membrane. Below, the cervix was exceedingly soft, and pus could be expressed from the divided surface of the uterine wall. There is little doubt of two facts in this case—first, that this woman was ill prior to her admission into hospital; and, secondly, that she died of pyæmia.—*January* 20, 1877.

BROMO-HYDRATE OF CICUTINE.

M. Dujardin-Baumetz has published a memoir on this alkaloid, which has as yet been little used, as its therapeutical properties have been little studied. It is an ammoniacal body, in which two atoms of hydrogen have been replaced by a carbo-hydrate conylene; it crystallises in rhomboidal colourless prisms, soluble in ordinary media. Its effects upon the system are similar to those of curara, except that it does not excite the sensibility of the pneumogastric. If convulsions result it will always be found that the drug has been impure. It is well borne by the stomach in doses of 15 centigrammes, but M. Baumetz prefers hypodermic injections. From its sedative effect on the pneumogastric he believes that in neuroses, in which that nerve is at fault, also in asthma, it may be employed with success. In animals it acts as an antidote to strychnine.—*Le Progrès Médical.*

S. W.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, M.D., F.K.Q.C.P.

Vital Statistics

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, June 16, 1877.

Towns	Population in 1871	Births Registered	Deaths Registered	Deaths from Zymotic Diseases							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhœa	
Dublin, -	314,666	740	672	1	55	5	—	9	22	9	27·8
Belfast, -	182,082	578	431	—	13	4	—	4	16	11	31·0
Cork, -	91,965	201	160	—	—	—	—	—	3	8	22·8
Limerick, -	44,209	87	100	—	—	—	—	—	1	3	29·3
Derry, -	30,884	85	42	—	—	—	—	—	—	—	17·8
Waterford, -	30,626	78	47	—	—	—	—	—	2	2	20·0
Galway, -	19,692	40	42	—	—	—	—	1	—	—	27·5
Sligo, -	17,285	31	22	—	—	—	—	—	—	1	16·5

Remarks.

A very unfavourable death-rate for the time of year prevailed in Belfast, Limerick, Dublin, and Galway. In the remaining towns the mortality was moderate or low. The death-rate was 20·6 per 1,000 of the population annually in London, 20·2 in Edinburgh, and 26·5 in Glasgow. Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the rate of mortality was 26·5 per 1,000 in Dublin. Zymotic affections caused 129 deaths in Dublin, compared with 132 and 102 in the two preceding four-week periods respectively. The epidemic of measles has increased in this city, but diminished in Belfast. Of the 55 deaths due to this disease in the Dublin registration district, no fewer than 30 took place in No. 1 North City district. Croup caused 12 deaths in Dublin; and among the 22 deaths referred to fever were 10 from typhus, 10 from enteric, and 2 from simple continued fever. No death from any of the principal zymotics was registered in Derry. The epidemic of small-pox is steadily decreasing in London, where the deaths from this disease numbered 243, against 291 and 292 in the two preceding four-week periods respectively. Strangely enough, the mortality from respiratory affections in Dublin increased from 143 to 167, and included 116 deaths from bronchitis and 32 from pneumonia. There can be little doubt that some of the deaths attributed to these affections were primarily due to measles.

Meteorology.

Abstract of Observations made at Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of June, 1877.

Mean Height of Barometer,	29·960 inches.
Maximal Height of Barometer (on 30th at 9 a.m.),	30·246 ,,
Minimal Height of Barometer (on 1st at 9 a.m.),	29·182 ,,
Mean Dry-bulb Temperature,	58·7°
Mean Wet-bulb Temperature,	54·3°
Mean Dew-point Temperature,	50·4°
Mean Elastic Force (Tension) of Aqueous Vapour,	·366 inch.
Mean Humidity,	74·0 per cent.
Highest Temperature in Shade (on 28th),	72·3°
Lowest Temperature in Shade (on 24th),	44·0°
Lowest Temperature on Grass (Radiation) (on 24th),	38·6°
Mean Amount of Cloud,	57·0 per cent.
Rainfall (on 12 days),	·921 inch.
General Direction of Wind,	W., S.W., and N.E.

Remarks.

Throughout the first ten days changeable weather was experienced in Ireland, while it was much more settled in France and England. An extensive area of low barometrical pressure existed off the west coasts of Scotland and Ireland, and along the eastern edge of this area of low pressure a succession of *bourrasques*, or small cyclonic systems, travelled from S. to N., or from S.W. to N.E. No less than five of these systems were observed in Dublin in the week ending Saturday, the 9th. They were attended by fresh to strong S.W. to W. breezes, frequent, although not heavy, rains, and a low temperature for the season. On Wednesday, the 12th, an anticyclone formed over the United Kingdom, the sky cleared, and beautiful summer-like weather prevailed. In Dublin the heat never became extreme, the warmth of an almost unclouded sun being tempered by daily light sea-breezes from E. to N.E. The night of Monday, the 18th, was close and overcast, and at 5·30 a.m. next day a smart local thunderstorm occurred at Kingstown. Thunder was again heard at 10. a.m. of the 21st, but no rain fell. Next day, however, a large (but not very deep) depression lay over Ireland, Scotland, and the greater part of England. It brought frequent showers, and a considerable, although temporary, reduction of temperature. Towards the close of the month the conditions which held at the commencement were restored—thus the weather was rather unsettled in the N. and W., but brilliant and very warm in the S.E., the thermometer rising to 80° or upwards in the shade over central England on the 30th. In Dublin no rain was registered from the 7th to the 19th.

PERISCOPE.

Edited by G. F. Duffey, M.D., F.K.Q.C.P.

GASEOUS CYSTS IN THE WALLS OF THE ILEUM AND IN A FRINGE OF CONNECTIVE TISSUE DEPENDING FROM IT.

The following remarkable condition is described by Bang in the 8th volume of the *Nordiskt Med. Arkiv.*:—A woman, fifty-seven years of age, died of volvulus affecting the sigmoid flexure of the colon; and on making the *post mortem* examination, 24 hours after death, the ileum, for about the last two feet of its course, was found to be the seat of a number of cysts containing air, and to be covered by a more or less filamentous development of connective tissue, which was beset by similar cysts in great numbers. The cysts found in the wall of the gut varied in size from that of a pea to that of a bean. For the most part they were found embedded in the circular fibres, some, however, occurring between the two layers of the *muscularis*, while others were in the *submucosa*. They contained no fluid. They were separated from the muscular fibres by fibrous tissue, which was lined by a layer of endothelium, the cells of which are described as being very large, composed of a finely granular protoplasm, somewhat yellow in colour, and multinucleated. A finely granular mass, soluble in acetic acid, was here and there found near the wall of the cysts. The cysts occurring in the dependent tissue varied in size from what was almost invisibly small to the size of a pea. Their walls were very thin, and in structure they very closely resembled those met with in the wall of the gut itself. The thread-like processes from the serous membrane, in which these cysts occurred, was composed of connective tissue with numerous and various cell forms. The tissue was very vascular, the vessels being dilated here and there. There was further a rich net-work of fine canals, containing within them a network of fibrin and large flat cells. These, which were obviously lymphatics, were also considerably dilated in parts, but no connexion could be traced between them and the cysts. Throughout the tissue there were also found a vast number of areas, varying from microscopic size upwards, until they could just be recognised by the naked eye, containing cells very similar to the endothelial elements of the cyst walls. But these also appeared to have no connexion with the lymphatic system, and could often be seen to occupy the centre of a mesh formed by the lymphatic vessels. These the author regards as the primitive condition of the cysts, and he states that every stage of transition between this form and that of the fully-formed cyst was discoverable. The author believes the cysts to

have been originally serous, and the development of gas to have been secondary. That air could have got in from without he regards as impossible, and that the gas was a mere *post mortem*, putrefactive change, as untenable when taken in connexion with the other facts of the *post mortem*. On the same grounds he rejects the idea that the change was effected by putrid decomposition during life. He is inclined to consider the case as one of spontaneous development of gas.

R. J. H.

ON THE OPERATIVE TREATMENT OF VARICOSE VEINS OF THE LEG.

Dr. Max Schede, Surgeon to the Metropolitan General Hospital of Berlin at Frederichshain, read a paper on this subject before the Surgical Section of the Congress of Naturalists and Physicians at Hamburg last year, which is published in the *Berliner Klinische Wochenschrift* for 12th February, 1877. After a brief review of the operative measures which have hitherto been adopted for the radical cure of varicose veins, Dr. Schede draws the following conclusions in respect of them:—"1. By means of the artificial occlusion of varicose veins of the lower extremities very good results without doubt may be attained, and have been frequently attained. 2. The results, however, have not been constant. Sometimes the effect was of short duration—sometimes it remained entirely absent. 3. All methods hitherto known of producing obliteration of the veins imply a certain danger to life, which, although not great in the majority of cases, still has been sufficient to offer an obstacle to the general adoption of such treatment." Schede first operated in 10 patients in the course of a year by the following method, which in itself is nothing new:—The skin of the part and its neighbourhood was shaved and carefully disinfected; then a bandage was tied around the thigh to cause the veins of the leg to distend; then, under the carbolic acid spray, the vein was laid bare by an incision of about an inch in length; it was isolated and ligatured in two places with catgut, and between the two ligatures it was cut through. The wound was now united with silken sutures, and Lister's dressing applied, and the leg fastened to a splint extending as far as the hip, in order to prevent all motion or a floating off of any thrombus which might form. The dressing was not usually disturbed before the fifth day, in order then to remove the sutures. The external wound was usually found healed on this day; but still Schede, for the sake of caution, did not permit his patients to quit their beds before the fourteenth day. What the author claims as an improvement here is the employment of Lister's dressing in such cases. From 80 to 100 vessels were operated on in his 10 patients. In respect of absence of all danger and of violent reaction, the results were most satisfactory. From the whole number of operations in only three did an insignificant suppuration take place. In each of these

there was sufficient special reason to account for the irregularity. The immediate result in all the author's cases, except one, was most favourable; the ulcers healed very rapidly, and the patients felt themselves greatly relieved at once upon leaving their beds. The single patient in whom the result was not satisfactory was a female, who shortly after the operation had a recurrence of ague, to which she was liable. The author examined three of the first patients he had treated in the way described after an interval of about nine months. In two of them the cure continued complete, and in the third some new varicosities had been developed. Two types of varicose veins are to be recognised; either their walls are very much hypertrophied, in which case they are surrounded by tolerably loose connective tissue, the skin is relatively normal, and their isolation and tying offer no difficulties; or their walls are extremely attenuated, with boggy infiltration of the adjacent cutis and subcutaneous tissue, and an intimate adhesion of the walls of the vein to the surrounding cellular tissue. Possibly Cornil's view is correct, which would make the latter condition a more advanced stage of the former. Practically it is only vessels belonging to the first category which afford favourable fields for the above operation; in many of the other cases it may be found impossible. A second difficulty arises here in consequence of the use of Lister's dressing, directly due to the absence of all inflammatory reaction after the operation. Schede has observed, namely, that no thrombus, or but a very short one, is formed in the veins. If Brücke's theory be right, which makes the non-coagulation of the blood in the vessels depend on the integrity of the endothelial layer, and the coagulation extend only as far as the alteration in this layer, the explanation for this remarkable fact is evident. So far as this absence of thrombus makes the proceeding a dangerless one, it is very well; but, on the other hand, it reduces the effect of the ligature to a minimum. The circulation will be arrested exactly at the ligature, but a branch entering close to the latter can paralyse the effect of the operation in the shortest time. This is what occurred in the author's third case referred to above. He has, therefore, devised another method of operation which seems to him to combine rapidity and ease of performance with complete absence of danger and great efficacy. Late investigations into the fate of ligatured vessels have shown that the formation of a thrombus is quite a secondary and accidental event, and for the obliteration of the vessel quite unimportant, and that an organisation of the thrombus does not take place (Riedel, in *Deutsche Zeitschrift für Chirurgie*, Bd. VI., and Baumgarten, in *Centralblatt für die Med. Wissensch.*, 1876, No. 34). The union of the opposite walls of the vessel takes place by means of an inflammatory process of the walls themselves, in which inflammation the endothelium plays an important part. Schede proceeds in the following way:—He passes from three to five catgut

ligatures through the skin and around the vein at intervals of about ⅔ of an inch from each other; these ligatures he ties over a piece of stout gutta-percha tubing laid on the skin along the vein, commencing with the peripheral suture, while an assistant presses the tubing flat at the place of each suture as it is tied, in order to drive all blood out of the vessel at that place. By this means the walls of the vessel must come into close contact, while the ligatures provide for the necessary amount of inflammatory reaction. Over all Lister's dressing is placed. Several such occlusions can be undertaken at one and the same sitting, as the surgeon sees fit. Half the ligatures may be removed after twelve hours, the remainder after twenty-four hours. The tubing is allowed to remain for some days, and is kept in its place by aid of the bandage merely. In eight days the cure is complete. Neither decubitus from pressure of the tubing nor cutting through of the ligatures has been observed, although in one instance a vein to the extent of nineteen inches was obliterated by aid of thirty sutures.

H. R. S.

ANIMAL HEAT.

M. Claude Bernard has communicated to the Société de Biologie some results of his researches on animal heat. By introducing simultaneously long thermo-electric sounds into the aorta and the vena cava he found that—1. The temperature of arterial blood does not vary in the entire extent of the aorta and the large arteries, while that of venous blood is very different at different points of its course. 2. At the periphery of the body venous blood has a lower temperature than arterial, while, on the contrary, in the heart the venous is warmer. At the level of the renal veins the temperature is almost equal, but at the junction of the hepatic vein the venous blood is several tenths of a centigrade degree hotter than the aortic. Notwithstanding the admixture of colder blood, brought by the superior cava, this predominance continues in the heart. 3. It is not to be concluded that the abdominal organs are therefore originators of heat. They are simply better protected from contact with the air and evaporation. There are no special calorific centres in the body. Heat is produced in all the tissues of the economy as being a direct consequence of nutrition. *Apropos* of the elevation of temperature in contracting muscles, M. Claude Bernard desires particularly to draw attention to the fact that this elevation is always preceded by a lowering of temperature or even a well-marked chill. In glands the same phenomenon is observable. When the chorda tympani is excited to cause secretion from the submaxillary gland, a thermo-electric needle, placed in the gland substance, will show a distinct fall in temperature just before the moment of secretion. He also insists upon the difference existing between thermic and vasomotor nerves. When the vasomotor

alone are put into action the capillary circulation is increased, but the heat of the organism is always lessened. In the action of the thermic nerves the vasomotor effect is a consequence, and there is always a rise in the general temperature of the organism.—*Gazette Médicale de Paris.*

S. W.

ON THE VOLUMETRIC DETERMINATION OF THE PRESSURE OF THE BLOOD IN MAN.

Dr. v. Basch, working with a slightly modified plethysmograph, has arrived at several interesting results. He finds that during perfect rest of mind and body the volume of the arm does not remain constant, but undergoes a rhythmic increase and diminution. This is not due to local action of vasomotor nerves, since there is no variation apparent in the vessels of the skin, but is attributable to alternations in the tension of the blood in the aorta, such as have been observed by Traube and Hering in animals. When the subject under experiment falls asleep during the observation, a marked diminution in the volume of the arm is noticed, which lasts about a minute, and then gives place to the rhythmic alternations just described. This is probably due to a diminution in the tonus of the blood-vessels, which is most felt in the highly distensible vessels of the abdomen, in which the blood accumulates, a less quantity circulating in the arm. During mental effort, v. Basch observed a diminution of the volume of the arm, but less constantly than was found by Mosso. In many cases no effect was produced, and in some even an increase of volume. The diminution of bulk, which was explained by Mosso as due to an increased action of the vasomotor nerves of the limb, is attributed by v. Basch to lowering of aortic tension, caused either by derivation of blood to the brain, or by an inhibitory action on the vasomotor centre, which allows a dilatation of the peripheral vessels, chiefly those of the portal system. If, when the abdomen was relaxed, pressure was made from side to side, so as to compress the intestines, an increase in the bulk of the arm was immediately observed, which disappeared instantaneously when the compression was removed. This was due to a raising of aortic tension by the obstruction to the passage of the blood through the compressed vessels of the intestines. If, however, the pressure was made directly backwards, the arm diminished in volume, because the pressure, acting chiefly on the vena cava inferior, arrested the passage of blood to the heart, and so diminished the quantity sent into the arteries. It was observed, too, that backward pressure caused diminution of volume in the retinal vessels, as seen by the ophthalmoscope. When the abdomen is compressed by action of its muscular walls, the volume of the arm increases and again diminishes when the pressure is relaxed, but the curve is different in this case to that observed when the pressure is passive. In the latter case the ascent is marked by inequalities, due to unavoidable

unevenness in the manual compression, and which are absent when the abdomen is compressed by its own muscles. In the case of passive pressure the fall is sudden, because the abdominal vessels, immediately on removal of the compression, receive blood from the aorta, and relieve the tension in the general circulation. When, however, the active pressure ceases, the fall of the curve is gradual. The explanation of this depends on a fact pointed out many years ago by Donders—namely, that when the abdominal walls are contracted, and the thorax fixed in expiration, although the return of blood to the heart from the general periphery of the body is impeded owing to the increased intra-thoracic pressure, yet the flow of blood from the abdomen is rather favoured, since the pressure in this cavity is still higher than that in the thorax. But this high abdominal pressure must impede the passage of blood into the abdomen, so that for a time the heart must receive more blood from the portal system than it sends into it, and as the circulation through the lungs is not interfered with, the left heart and aorta must be unduly filled with blood, and the general arterial tension raised. When the compression is removed this arterial plethora gradually subsides, and hence the fall of the curve is gradual. Independently of fixation of the thorax, an active compression of the abdomen is possible. When in the supine position the thigh is flexed to an obtuse angle with the abdomen, the tension of the walls of the latter increases, and diminishes again when the degree of flexion reaches or passes a right angle. Corresponding to this the curve of the volume of the arm rises in the first case and falls in the second. When the arms are raised above the head the ribs are elevated and drawn outwards by the pectoralis muscles, and the thorax and abdomen are both increased in capacity, and the pressure in their cavities diminished, hence the blood flows freely into the abdominal vessels, and the general arterial tension is diminished. This occurs even if only one arm be raised, and the volume of the other arm is then observed to diminish corresponding to the lowering of tension in its vessels. This explains the effect produced by raising the hands above the head in causing syncope and arresting hæmorrhage. It will be seen that the phenomena observed by means of the plethysmograph, which are explained by Mosso as for the most part due to local action of the vasomotor nerves, are attributed by v. Basch to variations in the general arterial tension, caused by alterations in the circulation through the vessels of the abdomen.—*Wiener Medizinische Jahrbücher*, 1876, s. 431.

J. M. P.

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THE DUBLIN JOURNAL

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SEPTEMBER 1, 1877.

PART I.

ORIGINAL COMMUNICATIONS.

ART. VII.—*Case of Necrosis of Femur, with Remarks.* By W. COLLES, Surgeon to Steevens' Hospital, &c.

IT seems to me that there still exists considerable doubt in the minds of surgeons as to the action of the living on dead parts.

This is not readily observed in soft parts, where the action is rapid and the changes produced may be attributed to other causes, and cannot be accurately observed on account of the difficulty in contrasting the slough immediately at its death and at its final separation. We even find surgeons denying this action in bone, because they place a dead bone on healthy granulations, and find no alteration in the bone when examined after some time; but I think a surgeon who carefully examines the process as it occurs in many cases of necrosis must see that the action of living parts on dead bone is most energetic.

We will first consider the cases in which these changes can be most readily observed—that is, in a case of acute necrosis, occurring in a young subject, in the shaft of these bones in which we most frequently observe perfect regeneration of bone from the periosteum—the femur, tibia, and humerus; here, after exposure to wet and cold, the entire shaft of the bone suddenly dies, the epiphysary ends remain, preserving the joints and affording a base for the subsequent changes. The first effect of this death of bone is that it acts as a foreign body; the periosteum becomes detached;

pus is effused in great quantity; this gets out through openings which are termed cloacæ, and then the periosteum secretes material for the formation of new bone outside of the sequestrum, which new bone is lined by a soft, very vascular, velvety membrane secreting pus, and, therefore, we may term the elevations on it granulations. The periosteum still adheres to the epiphysary ends, which also form granulations for the purpose of separating the dead from the living bone.

Now, in these cases, we proceed to examine first the sequestrum, which we would expect to find, if not acted on—no matter how soon removed or how long it was allowed to remain—unaltered, presenting the same size, form, and density of this original shaft. But such is not the case, and the longer the sequestrum remains in the invaginating bone the more remarkable are the changes in it.

We will observe that though at first the medullary canal may be of normal size in the centre, yet at both ends the bone is excavated into a conical shape; at the edges of this cone the bone is thin and irregular, the interior presents a worm-eaten appearance, with regular indentations, the outer surface remaining smooth and unaltered. If we now examine the cavity, we find arising from both epiphysary ends a large, very vascular, conical mass of granulation, each separate lobe of which fits most exactly into each worm-eaten depression in the sequestrum, and the longer the bone remains in the cavity the greater the diminution of the substance in the original bone, so that we often find it divided into long splinters, and even, as in the case recorded, entirely absorbed.

At times we will observe cases in which the sequestrum is protruded two or three inches from the cavity; still here the cone of granulation retains its action and position, though bent so as to accommodate itself to the changes, but we will observe the inner portion of the bone entirely absorbed and grooved out to the level of this mass of granulations, and the outer surface, from which these granulations have been removed, undergoing no further absorption. In considering all these changes, I do not see how we can avoid coming to the conclusion that the dead bone has been acted on by the conical granulating mass eroding it from within, while those granulations from the lining membrane of the new bone produce no change, as we observe the outer surface of the bone still smooth and polished, although in such close apposition with the membrane for so long a period.

In the adult we seldom have so complete a death of the entire

shaft of a bone, and therefore cannot so readily measure the extent of the part acted on; and the deposition of new bone is uncertain and imperfect, still the absorbing granulations will spring from the living bone. We may remark the same kind of granulating mass filling up joints which have been extremely corroded by disease and in most carious bones. In necrosis of the bones of the skull we will also see evidence of absorption—first, the red line of demarcation gradually extends, granulations arise at the edges, and after a time we often observe a mass of granulation appear through the middle of the necrosed bone, which they must evidently have absorbed, so that at last only a ring of bone comes to be separated.

In compound comminuted fractures we at times find a dead portion of bone will gradually disappear without any evidence of its having escaped through the opening; hence we must conclude that it has disappeared by disintegration or absorption—that is, by having been acted on by the living parts.

As far as my observation goes the cases in which regeneration of bone from periosteum occurs in the human subject are very few; hence the anxiety of surgeons of the present day to scrape away and save periosteum are useless, if not injurious, for they interfere with the connexion of the periosteum and bone at the point of separation, and do not aid in the generation of new bone at the portion separated. I have often seen cases of necrosis of portions of the femur and tibia in adults, and no effusion of new bone to be observed.

In the bones of the fingers we have the same disease of acute necrosis as in acute paronychia, but it generally occurs in grown individuals; here the entire bone dies, the joints at both ends being destroyed. In these cases we never observe any new bone thrown out by the periosteum.

In necrosis of the bones of the forearm, after the removal of the sequestrum, we find that if new bone is found it generally grows from the epiphysary ends, not from periosteum, as a long conical projection, often not meeting in its centre, and after amputation and the operation of trepanning, new bone is thrown out, not by periosteum, but by the edge of the old bone. So that we find dead bone acted on and absorbed at times rapidly by granulations arising from a bony surface of epiphysis, but not by granulation of the lining membrane of new bone; and this activity of the ends so often converted from an absorbing action to the deposition of new bone.

When we find a mass of dead bone situated in either extremity of a long bone, as of tibia, we find the cavity lined by this velvety membrane, and here the bone may remain unaltered for years.

The most striking evidence of the absorption of dead bone is the following case, in which we find from the testimony of Dr. Deely, who attended the patient throughout, and the patient himself, that not even a splinter of bone was ever observed to pass through the opening; it was entirely either disintegrated or absorbed by these granulations. Thus the fact remains that the entire shaft of the femur disappeared without any external separation of bone, and that in this otherwise healthy boy a period of seven months sufficed for the completion of the process:—

T. L., aged sixteen, admitted into Steevens' Hospital, March 2, 1877, states that about eight months ago, while wading in a river after some fish, he was suddenly seized by severe pain in the left thigh, and had to be carried home. Limb greatly swollen and painful. After four days an opening was made which gave exit to a large quantity of dark pus; this discharge continued till about a month ago. There was no mark of any injury. On admission the left thigh was much enlarged through its entire extent, the enlargement evidently depending on the deposition of new bone, and the limb shorter than the right about $\frac{3}{4}$ inch. An opening is perceived about an inch or two above the joint, and is marked by a small cluster of granulations, with the skin around white and indented; through this a probe can be passed for 6 or 8 inches in an evidently bony canal, but no loose or dead bone can be felt. Thigh on right side measures $13\frac{1}{2}$ inches, on left $16\frac{1}{2}$. On standing the toes only reach the ground; in other respects is healthy. Ordered tonics and injections into the joint of dilute sulphuric acid; then a weak solution of salicylic acid, when the discharge gradually ceased and the opening closed. Never observed any pieces of bone to be discharged. After remaining closed for three or four weeks it again became inflamed when he left hospital.

ART. VIII.—*Reports in Practical Surgery.* By MONTGOMERY A. WARD, M.B., M.Ch., Univ. Dub.; ex-Medical Scholar, T.C.D.; Fellow and Licentiate of the Royal College of Surgeons of Ireland; Assistant Surgeon to the Adelaide Hospital; one of the Medical Officers of the Maison de Santé, Charlemont-street; Demonstrator and Lecturer on Practical Anatomy in the Ledwich School.

I. FRACTURE OF BOTH BONES OF THE LEG, TREATED WITH A NEW BOX-SPLINT.

II A LARGE CARBUNCLE ON THE BACK OF THE HEAD AND NECK, TREATED BY MULTIPLE INCISIONS.

III. DISLOCATIONS OF THE SHOULDER-JOINT.

IV. A CASE OF TEALE'S AMPUTATION OF THE LEG IN WHICH MORE THAN ONE-HALF OF THE RECTANGULAR FLAP SLOUGHED.

Fracture of both Bones of the Leg, treated with a New Box-splint.

EVERY surgeon who treats fractures of the leg by any of the ordinary methods must remark the frequency with which patients complain of a pain in the heel, sometimes slight, but occasionally very severe indeed; and as it is the duty of the surgeon to remove every source of discomfort and irritation in the treatment of his cases—for a slight cause often produces severe and unpleasant constitutional disturbances, especially in persons of nervous temperaments or broken-down constitutions—I venture to bring before the profession a box-splint which I have devised to obviate this distressing pain in the heel so often complained of, but more especially so when the ordinary box-splint is used. For years I have remarked patients complaining of this pain, and the only methods I have ever seen attempted to relieve it—viz., by pads, French wadding, &c.—frequently give but temporary relief. I should mention that Dr. Hughes, Surgeon to Jervis-street Hospital, has improved Dupuytren's splint by adding to it a very ingenious mechanical support for the purpose of relieving the heel from pressure.

I had the misfortune to suffer from a severe fracture of both bones of my left leg, which laid me up for a long time, and I suffered more pain and annoyance, when in splints, from my heel, than from the fracture itself. Constantly I was kept awake all night by this pain alone, despite all the efforts used to alleviate it, while on all

occasions it was a great source of annoyance to me—indeed I would not have believed that this pain, which surgeons think so lightly of, was so distressing, until I suffered from it myself.

Case I.—On July 2nd, 1876, I was requested by the late Dr. Thompson, of Bray, to see, along with him, a gentleman who had broken his leg in the following way:—As he was riding down a steep hill, in the vicinity of Bray, on a velocipede, he lost all control over the machine, and was dashed with great violence to the ground. Besides other injuries, both bones of his right leg were fractured, the tibia being broken in two places; the fracture was not compound, but there was a good deal of extravasated blood, indicating the rupture of a small artery. We temporarily kept the leg in position by two sand-bags until a local carpenter made a box-splint. I, bearing in mind the pain in the heel, suggested that the under-splint, on which the leg rested, should be hollowed out for the calf of the leg, and a round hole cut in it for the heel; this was done. I saw this gentleman several times with Dr. Thompson, and had charge of him for a month during Dr. Thompson's absence in Scotland, and never once did he suffer from a pain in the heel, and eventually made a fine recovery. I was so pleased with the result of this case that I asked Messrs. M'Adams and Corcoran to make for me a similar splint, but better finished and more perfect than the rough and ready one made in a hurry by the Bray carpenter.

It will be seen by the accompanying illustration, marked No. 2, that the under or supporting splint consists of a double inclined plane, the thigh-piece, being hollowed out to support the convexity of the thigh, meets the leg-piece at a very obtuse angle, but just sufficient to cause perfect muscular relaxation; the under leg-piece is also scooped out to correspond to the calf of the leg, then elevated for the "tendo Achillis," and hollowed out again for the heel. A pad is made to fit accurately this under-splint—thus the leg can be kept in a perfectly straight line, the concavities of the splint being adapted to the convexities of the limb.

In the ordinary box-splint used in the Dublin hospitals for fractures of the leg and ankle, as well as in Mr. Butcher's, the under-piece for the leg is perfectly flat; consequently, when a fractured leg is placed in either apparatus, more or less undue weight is thrown upon the heel, thus causing the heel pain; to remedy this, surgeons are in the habit of placing extra padding beneath the tendo Achillis so as to take the pressure off the heel. This answers well in some cases, but I have frequently seen it fail; whereas in my splint no undue weight is thrown upon the heel, while every portion of the

limb encased in the box sustains the same uniform pressure. Again, the thigh-piece of the ordinary box-splint is flat, therefore not so comfortable, while in mine it is concave.

Fig. 1.

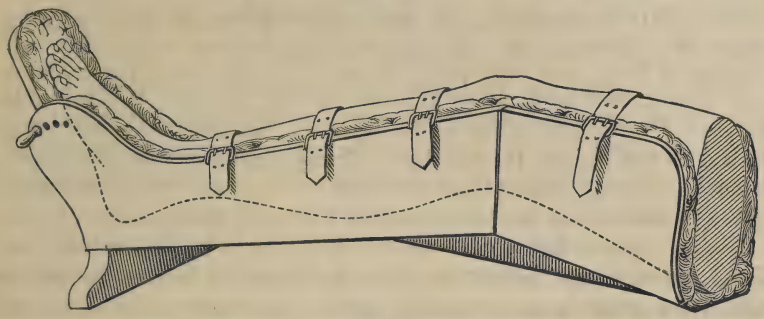
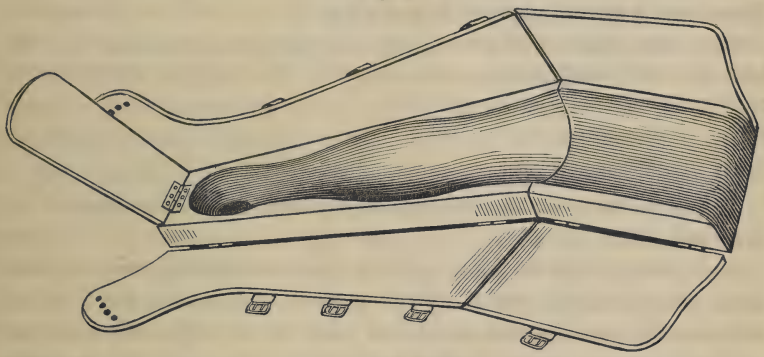


Fig. 2.



In the illustration marked Fig. 1 the straps appear pressing upon the thigh and leg, whereas in reality they do not touch it at all, as the sides of the splint are higher than the limb when *in situ*. Fig. 2 faithfully depicts the splint, with one side let down.

A Large Carbuncle on the Back of the Head and Neck treated by Multiple Incisions.

Surgeons of the present day are by no means unanimous regarding the best local treatment for carbuncles: some pursue one particular method to the exclusion of all other plans of treatment, while others adopt different methods in different cases. As the subject of their treatment, more particularly of those situated on the back of the head, is one of absorbing interest, especially since

so eminent an authority as Sir Astley Cooper has stated that "carbuncle does well, except when situated on the head or neck. Though persons recover from carbuncles of an enormous size upon the back, yet very small ones on the head or neck will often destroy—indeed I never saw a patient who recovered from any considerable carbuncle upon the head; in these cases there is effusion upon the brain, producing compression."

I thought that the particulars of a case which occurred in my private practice, and which was successfully treated by multiple incisions, might possibly prove interesting, especially as it was the largest carbuncle situated on the back of the head that I have ever seen or heard of, in which a complete recovery ensued.

Before describing the treatment which I adopted in this particular case, I wish briefly to refer, for the sake of comparison, to the other plans most generally pursued at the present time, and endeavour to show that no invariable rule can possibly be laid down in the treatment of this affection.

1st. The plan termed compression, so ably advocated by the late Mr. O'Ferrall, and more recently by the late Mr. M. H. Collis, is, I think, admirably suited for carbuncles of a small size. I have frequently used it with marked success in such cases in patients attending the extern department of the Adelaide Hospital; but I believe it to be impracticable in any large carbuncle situated on the back of the head.

2nd. The crucial incision is still a favourite remedy with a great many surgeons. In many cases it answers admirably, but I think it would be hazardous to adopt this plan in a large carbuncle extending from one parotid region to another, if a cut should be made from sound skin to sound skin—a rule laid down by its advocates. I have used this method with success in carbuncles of a moderate size, situated on the back. Two of the great objections to its use—viz., the danger of hæmorrhage and the subsequent formation of a large suppurating sore—do not hold good in the plan that I recommend.

3rd. The method of treatment by caustics is strongly advocated by many—*e. g.*, Mr. Bryant, in his "Surgery," states that he adopts no other plan. I have never used it, neither have I ever seen it used, but I have lately seen a case in which this mode was adopted, and the appearance which the back of the neck presents is anything but satisfactory, the whole of the integument having been destroyed. The neck presents the appearance of a cicatrix so

common after burns. Now, I maintain that it is most important to save the integument as far as possible; when caustic is used much must be destroyed, which can be saved in the plan which I propose.

4th. With regard to the plan of treatment by simple poulticing, I have had no personal experience, but I am aware that it has proved most successful in the practice of my colleague, Dr. Richardson.

5th. M. Gosselin recommends the plan of making punctures into the carbuncle, and then evacuating them by means of compression. This procedure I have never seen adopted.

The other modes of treatment I shall pass over, as they have at present few, if any, advocates.

The plan which I propose is to make one incision about an inch and a-half or two inches long, as the case may be, over the centre of the carbuncle when the slough has formed, and from four to six counter-openings round the central one, varying in size from a quarter to half an inch; then plug the openings with strips of lint steeped in some stimulating application, and lay a poultice over all, dressing the carbuncle in the same way every day until all the sloughs have separated.

The advantages which I claim for this method are—

1st, and most important, all the integument is preserved.

2nd. It has all the advantages of the mode of treatment by crucial incision, without any of the disadvantages of that method.

3rd. There is almost entire freedom from hæmorrhage.

4th. The avoidance of a large, open, suppurating sore.

5th. Just sufficient space for removing the dead cellular tissue.

6th. Very slight cicatricial marking.

I shall now briefly narrate the particulars of a case in which I employed this treatment:—

Case I.—Mr. ——, a strong, well-made, active man, who is between fifty and sixty years of age, and who has always led a very regular and temperate life, has been under my care for more than a year, suffering from successive crops of boils on the back, buttocks, and backs of the thighs; some of these were large, and I was obliged to open them with a knife. As soon as he thought he was well of one crop, another would make their appearance. During the whole of this period his state of health was anything but satisfactory, his bowels were very obstinate, and his urine constantly full of lithates; besides, his mind was extremely agitated by business transactions; on more than one occasion I strongly recommended him a complete change of air and scene, advising him to take a trip to

Lisdoonvarna for the purpose of drinking the waters in order to remove if possible the gouty diathesis from which he was evidently suffering, but he could not be persuaded to leave town.

On March 8th, 1877, I was asked to see him again for what he thought was another boil on the back of the neck. On making an examination, I at once ascertained that he was getting a carbuncle on the nape of the neck, and extending for a short distance upon the occipital bone. On making inquiries I found that it had been coming on for a week or ten days, and that he had been using poultices. I at once shaved the hair all round from the back of his head, and adopted the treatment by compression. This treatment I regularly carried out until the 13th inst., but still the disease daily made headway, and was rapidly extending in all directions. On this evening Dr. Edward Hamilton, ex-President of the Royal College of Surgeons of Ireland, and Dr. Frederick Alcock Nixon, saw him in consultation with me. Dr. Hamilton recommended the treatment by compression to be continued. This treatment was continued for three days longer, but still the carbuncle advanced, and was rapidly assuming a gangrenous aspect, especially over the right parotid region; it now extended from the spinous process of the fifth cervical vertebra to two inches above the occipital protuberance—in fact, it very nearly reached the crown of the head and from one mastoid process and parotid region to another. He was now in a most alarming condition, and his brain was evidently becoming affected. At last, on March the 16th, Mr. Edward Ledwich, an old friend of his, saw him in consultation with Dr. Hamilton, Dr. Nixon, and myself, when we unanimously determined to cut, as the only chance of saving his life. As the crucial incision was out of the question, in consequence of the enormous size and situation of the carbuncle, I introduced a director into one of the openings, and made an incision over the centre of the mass where it was most boggy, for about two inches or a little more. A quantity of pus escaped from this opening, to the evident relief of the patient; at a subsequent period I made five counter-openings around and at a distance from the central cut; from all these openings pus freely came, and they were plugged with strips of lint smeared over with elemi ointment, and a poultice laid over all. After the lapse of a week from the time of cutting, the dead cellular tissue began to separate, and at every dressing for the succeeding fortnight I removed, with the forceps, large pieces of dead tissue. When all the slough was removed, on looking through the central cut there was a large cavity plainly visible, extending from at least two inches above the occipital protuberance to the spinous process of the 5th cervical vertebra, and from one mastoid process and parotid region to the other, exposing the superficial layer of muscles. This cavity was daily syringed with a carbolic lotion, and plugged with lint covered with elemi ointment. It is unnecessary to give minutely the subsequent

treatment of this patient, which was conducted on general principles; suffice it to say that this large cavity gradually filled up; that all the integument has been preserved, with the exception of a small piece about the size of a farthing, which formed a nipple-shaped projection at the inferior extremity of the central cut, and which, strange to say, skinned over on its internal surface; consequently, as it was a source of irritation, I removed it with the knife. At the time I now write (August 1st) my patient is quite well, the central cut having perfectly healed. I ceased all dressing on yesterday. He is very slightly marked, and proves an exception to the rule laid down by Sir Astley Cooper.

I should mention that for some days before, and for at least ten days after he was cut, I was very much afraid of either blood-poisoning or compression of the brain, for during that period he was in a very drowsy, semi-unconscious state, though when roused up he would speak in a perfectly collected manner; he has quite forgotten everything that happened during that time.

With regard to the constitutional treatment, I kept up his strength in every possible way with plenty of the best beef-tea, milk, &c.; at one time stimulants were freely given, and the medicines chiefly relied upon were 5-grain doses of quinine, alternated with the bark and ammonia effervescing mixture.

Dislocations of the Shoulder-joint.

I have seen the various means recommended for reducing a dislocated humerus tried from time to time, and feel convinced that the easiest and most efficacious plan in the hands of a surgeon possessed of a moderate amount of physical strength, is the old method by means of the heel in the axilla. On one occasion I succeeded in reducing a subglenoid dislocation of the humerus of over two months' duration by this method, when all other means, including the pulleys, had failed, and just as all attempts at reduction were about to be given up as useless, the patient having been under the influence of chloroform for nearly one hour. In this case, no doubt, the previous traction of the pulleys, as well as the chloroform, facilitated the reduction. On another occasion, assisting Dr. Albert Walsh, I reduced a subspinous dislocation of the humerus, of six weeks' standing, in a powerful man, a commercial traveller, by the same means, while he was under the influence of chloroform. Lately I have adopted a plan as an adjunct to this method, in subglenoid and subcoracoid dislocations, which I first saw used by Dr. Walsh. It is extremely simple, and as I cannot find it mentioned in any text book on surgery, or surgical dictionary,

with which I am acquainted, I shall briefly describe it. The patient must be placed in the usual position for effecting the reduction by means of the heel in the axilla, then pass a towel (a diaper one, if possible) round the arm, and make an assistant use traction in the direction indicated in the accompanying illustration. I believe this traction greatly facilitates the reduction by raising the humerus out of its new bed—in fact, it is a powerful lever of the first order, the fulcrum represented by the towel being close to the resistance, while the operating surgeon represents the power, his heel acting as a wedge. I have never failed in reducing a recent dislocation of the shoulder by this plan, neither have I used chloroform for the purpose of causing muscular relaxation, and, as some patients strongly object to being put under its influence, I believe this to be the safest and most expeditious method of procedure, in such cases, for the purpose of overcoming the resistance of the muscles. I shall now give the particulars of three cases in which I adopted this plan with marked success, without the aid of chloroform:—

Case I.—On February 4, 1876, I was sent for to see Mr. ——, whom I was told had sustained a severe injury from a fall on the flags, while under the influence of drink. His friends told me that his arm was broken. Accordingly I went, bringing with me the suitable appliances for a broken arm. [I may here mention that it has often struck me as remarkable that a patient suffering from a luxation of the shoulder, or his friends, constantly mistake this injury for a broken arm.]

On arriving at the gentleman's residence, I at once ascertained that the arm was not broken, but that he was suffering from a subglenoid dislocation of the humerus. He was still under the influence of drink, being in a very nervous condition, and extremely troublesome. I attempted to reduce the luxation with my heel in the axilla, but failed, in consequence of the patient becoming very boisterous and unmanageable. I then essayed the plan with my knee in the axilla, also manipulation, but failed from the same causes. I now sought and obtained the assistance of my friend, Dr. Walsh, who kindly came at once. Dr. Walsh passed a towel round the arm, in the manner before described, while I planted my heel in the axilla, and, notwithstanding the struggles of the patient, in a very few moments the dislocation was reduced.

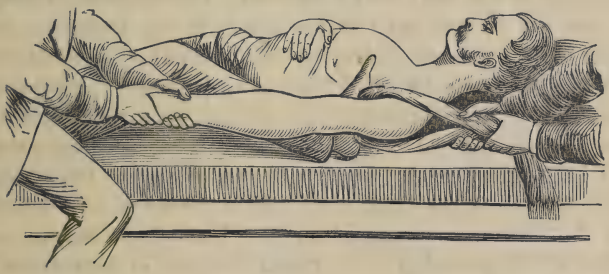
Case II.—On July 25, 1876, I was sent for in a hurry to see Mr. B., whom I was told had sustained some severe injuries in the following manner:—He was driving in the park with his brother and two ladies,

when the horse took fright, ran away, and the carriage, coming into collision with some obstruction, was upset, and the whole party thrown out on the road. They all fortunately escaped with some scratches, with the exception of Mr. B., who, in addition to having received some severe contusions, sustained a subglenoid dislocation of the shoulder. As he was a very muscular, well-developed man, and as he stated that he would not on any account take chloroform, I thought that I might possibly have some difficulty in replacing the humerus single-handed, especially as I was obliged to use my left leg (which was a little weak, in consequence of a bad fracture). I asked for assistance. Dr. B. F. M'Dowell, of York-street, was sent for, and came immediately. I first attempted to reduce the dislocation with the heel alone, but did not succeed; Dr. M'Dowell then passed the towel round the arm, and I easily effected the reduction with my heel in a few minutes.

Case III.—Lately I was sent for to see a lady, who, falling on her shoulder in the street, sustained a subcoracoid dislocation of the humerus. I reduced the displaced bone without any difficulty in a few moments with my heel, while her husband used traction with the towel under my directions.

In conclusion, I wish to state that I do not claim to be the originator of this plan, but merely desire to bring it under the notice of the profession, inasmuch as it has been so successful in the practice of others, as well as mine own, and because I do not think that it is very generally known.

Fig. 3.



In this illustration the artist could not reproduce the exact direction of the auxiliary force which I wished to convey, as if he did so, to use his own words, the drawing would be "fore-shortened." The direction of the force indicated by the towel should more nearly approach a right angle than it is represented to do.

A Case of Teale's Amputation of the Leg, in which more than one-half of the rectangular flap sloughed.

Case I.—Mr. —— was admitted into the Maison de Santé on August 23rd, 1874, under my care, for an extremely bad attack of delirium tremens. He had been drinking hard, off and on, for several years, and this was the third attack which he has had within the last year and a half. For one of these he was treated in the Maison a short time previously, and was discharged cured in a fortnight.

On admission, he had all the usual symptoms of delirium tremens in a well-marked degree; he was covered with a cold clammy perspiration, and his pulse was very quick and weak. On making inquiries from his friends, I ascertained that he had not slept for several nights. I ordered him to be put to bed, and gave him a draught containing thirty drops of liquoris opii sedativi. I then prescribed the following mixture, which is usually called in the hospital the D. T. bottle, and which we find by experience proves very successful in the treatment of these cases:—

℞.—Spiritus ammoniæ aromatici, .	℥ii.
Spiritus chloroformi, .	℥ii.
Tinct. opii, . . .	℥ii.
Aquæ camphoræ, ad., .	℥viii.

M. ft. mistura.

Take one-eighth part every four hours until sleep is produced.

He was also ordered port wine and beef-tea. The reason I gave port wine was that this was the stimulant he had been principally indulging in prior to his admission to hospital on this occasion. I may here remark that the treatment usually adopted in our institution for such cases is by stimulants and opiates; and while the stimulants are daily decreased, if possible, the beef-tea and other light nourishment is increased, and the bowels are carefully attended to. This plan of treatment we find by experience to be the best. When, however, there is a tendency to epileptiform convulsions or any other head symptoms, we never give opium. I have sometimes seen an attack of delirium tremens brought on by suddenly stopping the use of all stimulants.

Under this treatment Mr. —— rapidly improved, and on August 26th, having ascertained from the attendant that he slept all the preceding night, and seeing that all the symptoms of delirium tremens had passed away, I stopped the D. T. mixture, and ordered him one containing ten-grain doses of bromide of potassium, as he was only now suffering from the nervousness consequent on a prolonged debauch.

On August 30th I pronounced him convalescent, and he was placed on full diet.

August 31st.—I ordered him up stairs to a more cheerful and airy apartment, and gave him leave to take a walk in the garden.

Sept. 1st.—His friends were thinking of removing him to-day, but on second consideration asked permission for him to remain for a few days longer, as they were afraid he might begin to drink again if let out so soon. On this day, when at his dinner, he asked the attendant to bring him a carafe of fresh water, and during the attendant's temporary absence he deliberately opened the window and jumped into the back garden from a height of nearly forty feet. He sustained a compound comminuted fracture of both bones of the right leg, extending into the ankle-joint, with dislocation of the foot inwards. It surprised me very much at the time that he was not killed upon the spot.

Two theories suggest themselves to my mind to account for this mad act. Was it due to a sudden and unexpected relapse of delirium tremens, or to an ordinary attack of temporary insanity? I am more inclined to adopt the latter theory, because I subsequently found out that he had been for some time an inmate of a lunatic asylum, but I was not made aware of this fact while he was my patient.

On my arrival at the hospital, I saw at once that it would be useless to try and save the foot. Assisted by my colleague, Dr. Quinan, I made him as comfortable as possible for the night, and gave him a draught containing forty drops of liq. opii sedativi.

Sept. 2nd.—Dr. O'Leary, M.P., Mr. Ledwich, and Dr. Quinan, saw him in consultation with me this day, when we unanimously decided that amputation of the leg was imperatively demanded in order to save his life. His friends having consented to the adoption of this course, assisted by the gentlemen named, I performed Teale's operation, having first applied Esmarch's bandage, and the patient having been placed under the influence of chloroform by Dr. Quinan. The operation was completed in the usual way without any difficulty, and without the loss of any blood; the flaps were adjusted by sutures in accordance with Mr. Teale's directions, and the stump was covered with lint, steeped in carbolic oil. On the removal of the patient to bed, he was given a draught containing forty drops of liq. opii sedativi, and ordered small quantities of wine and beef-tea at intervals, and the draught to be repeated at 10 o'clock p.m.

Sept. 3rd.—Slept pretty well during the night. On examining the stump this morning, a slight inflammatory blush has appeared on the margins of the anterior flap, and red streaks are evident on the inside of the leg and lower portion of thigh in the course of the superficial lymphatics, indicating the advent of angeioleucitis. The inflammatory band was painted with a forty-grain solution of nitrate of silver, and the same treatment continued.

Sept. 4th.—Morning visit.—Has had a very restless night, and exhibits

symptoms of approaching delirium traumaticum. I placed a sheet round his body, and secured it to each side of the bed, to prevent him attempting to get out of bed; kept two male nurses constantly on duty, while a medical student took charge of the case at night. A small patch of gangrene has attacked the inner angle of the anterior flap; this portion of the stump was covered with a poultice made with Condy's disinfecting fluid. His nourishment was continued, and he was ordered the following mixture:—

℞.—Ammoniæ sesquicarbonatis, . .	gr. 80
Tinct. cinchonæ co., . . .	℥ss.
Syrupi aurantii, . . .	℥ss.
Infusi cinchonæ, ad., . . .	℥viii.

M. ft. mist.

Take one ounce with half an ounce of lemon juice every four hours.

Evening visit.—He is not so well to-night; is wandering, and disposed to be violent. Adopted extra-precautionary measures to prevent him injuring himself.

Sept. 5th.—Is somewhat weaker; had another restless night; the stump does not look so well, the gangrenous patch having increased in size; angeioleucitis stationary. Ordered brandy, in addition to his other nourishment, and the anodyne draught at night.

Sept. 6th.—Continues in much the same state. Same treatment continued.

It would be wearisome to give the daily record of this case from the notes which I have taken—suffice it to say that the delirium traumaticum continued for several days, the gangrenous action slowly but gradually extended, until more than half the anterior flap was attacked before a line of demarcation appeared; the slough was then thrown off, leaving the end of the tibia bathed in pus, a small portion of which subsequently exfoliated, while the angeioleucitis gradually subsided. For several days subsequent to the operation this man's life was in the most imminent danger, requiring constant care and attention.

After the separation of the slough, healthy granulations sprung up on all sides; then some pieces of the tibia exfoliated, and, when loose, were removed; the stump gradually commenced to heal, and was all but cicatrised on November 22nd—when, on this day, as he was making preparations to leave the hospital, from some cause or another, while walking, the crutches slipped, and he came down upon the stump with the whole weight of his body, injuring it very much and laying bare the bone, which had been completely

covered. This untoward event delayed his departure till December 18th, when he left, the stump having all but healed again. Subsequent to his departure from hospital I was informed that the stump remained very tender for a long time, and could not sustain any great pressure; but ultimately a good artificial leg was adjusted, and he can now walk fairly well.

The following are, in my opinion, the points of interest in this case:—

1st. The act of jumping out of the window when he appeared perfectly well; for this I have already suggested two theories.

2nd. The development of delirium traumaticum, which Mr. Ledwich and Dr. O'Leary believed was a recurrence of delirium tremens. In this view I cannot coincide, because during the attack of delirium traumaticum, there was no muscular tremor whatever, neither was the tongue in the least degree tremulous, whereas during his attack of delirium tremens he had well-marked muscular tremors and an extremely tremulous tongue. I am inclined to the opinion that the delirium traumaticum was induced by the accident happening in a constitution enfeebled by drink, &c.

3rd. The sloughing for more than half of the anterior flap; this was owing, in my opinion, to the debilitated state of his health.

I take this opportunity of returning my best thanks to my colleagues, as well as to Mr. Ledwich and Dr. O'Leary, for the valuable assistance they rendered me during the treatment of this sad case. For days after the operation we anticipated a fatal result, in consequence of the shattered state of his health. I believe that the successful termination of this case was, in no small degree, due to the careful nursing which he got. I placed him in charge of two trained male nurses, one of whom never left him for a moment, while a medical student sat up each night.

ART. IX.—*Hemianæsthesia.* By ROBERT SAMUELS ARCHER, M.B., Univ. Dubl.; Assistant Physician, West Derby Union Infirmary and Fever Hospital, Liverpool.

THE publication in the numbers of *The Lancet* of May 12th and June 2nd, 1877, by Dr. J. Russell Reynolds, of a paper on "Hemianæsthesia in the Clinique of Professor Charcot," has induced me to place on record the following remarkable case, which, taken in connexion with the above communication, may

prove not uninteresting to the readers of *The Dublin Journal of Medical Science*:—

Ellen F., aged fifty, had been a cook in a private family, and, according to her own account, a widow for eight years; admitted to West Derby Union Infirmary at 6.30 p.m. on Friday, Feb. 12, 1877. I could gather no reliable history of her case from the patient herself, nor could I learn from her from whence I would be likely to procure it.

On admission her voice was rather thick, and there was complete anæsthesia of the entire left side of the body from the vertex to the sole of her foot. When this side was irritated by pinches, pricks, or by any other means, she displayed not the faintest trace of sensation, and asserted that she did not feel the pinches, &c., at all. There was no reflex action on tickling the sole of the left foot. Sensation on right side perfect—in fact, this side appeared to be in a slightly hyperæsthetic condition. The grasp of the right hand was appreciably stronger than that of the left. There seemed to be slight paralysis of motion of the left side. Moved her left arm and leg when asked to, but in an ataxic purposeless manner. Complained of pain in her forehead. The left pupil was more dilated than the right; left upper eyelid in a state of semiptosis; had difficulty in raising it completely, and when the features were quiet it drooped, half covering the eyeball. She "rambled" a good deal in her conversation, and said she had been "drugged with white powder in beer" before admission. Imagined there was a cat under her bed, and other such nonsense. According to her own account, she was "taken quite powerless" yesterday—that is, the day before I saw her. She protruded her tongue on being asked to do so; the tip of it was directed slightly towards the right side; it was rather furred. She was very noisy while being carried to her ward; thirsty; complained of her feet being cold; said her left side felt "numb." Pulse 124; temperature in left axilla 98° F., in right 98·2° F.

Progress of Case.—10 p.m.—Rather violent; wriggled herself out of bed on to the floor; constantly jabbering a lot of nonsense.

Feb. 13th.—Pulse 120; temperature, right axilla, 100·4° F.; left axilla, 100·2° F. Had been violent more or less all night; sordes on lips; tongue covered down the sides by a brown fur; has passed no urine since admission; bladder was not distended. Ordered grs. 60 of potassium bromide at once, and grs. 20 every two hours after; head to be shaved and ice-bag applied. Evening.—Pulse 108; temperature, right axilla, 99·8° F.; left, 99·4° F. Quieter than she has been. The nurse had difficulty in getting her to swallow her medicine and nourishment. Passed some urine under her in bed; "rambling;" right cheek and temple feel slightly warmer to touch than left; condition of ptosis of left eyelid not so well marked as on admission; blinks her left upper eyelid a good deal.

Feb. 14th, morning.—Pulse 112; temperature, right axilla, 99·1° F.; left, 98·9° F. A good deal quieter this morning; low muttering delirium; condition of pupils same as when I saw her first; moves her right arm about a good deal; tongue brown, dry, and parched. Evening.—Pulse 112; temperature, right axilla, 99° F.; left, 97·8° F.

Feb. 15th, morning.—Pulse 116; temperature in both axillæ 98·6° F. More conscious and quieter this morning; tongue cleaner. Grs. 5 of potassium iodide to be added to the 20 gr. doses of potassium bromide, and to be given every four hours instead of every two, as hitherto; to have oz. 4 of wine. Uses her left hand in an ataxic manner, and cannot hold anything in it.

Feb. 16th, morning.—Pulse 100; temperature, right axilla, 98·4° F.; left, 97·4° F. Condition of consciousness still improving, but still "wandering" a good deal; not the slightest sensation in left side; left pupil not so much dilated as it has been up to this; ptosis not so well marked; tongue moister and not so brown; had a good night; complains of pain in head and thirst; bowels not open since she came in. To have a dose of castor-oil. Evening.—Pulse 100; temperature, right axilla, 98·8° F.; left, 98° F.

Feb. 17th, morning.—Pulse 100; temperature, right axilla, 98° F.; left, 97·9° F. Passed a quiet night; cannot keep her left hand and arm quiet, continually moving them about in an irregular ataxic manner. The left pupil is again more dilated than the right; left upper eyelid blinks again, and there is a slight discharge of tears from the eye; very thirsty, calling for cold water; cannot stand steadily on floor; she totters, and would fall if not supported.

Feb. 18th, morning.—Pulse 92. Seems more conscious; her speech is plainer; slept well; still her left side is in an absolutely anæsthetic condition.

Feb. 19th, morning.—Her general condition is improved; is more sensible, but still has delusions, such as imagining some one has given her something to do her harm.

Feb. 20th, morning.—Still improving; both pupils almost natural; left acts very nearly as well as right.

Feb. 21st, morning.—Pulse 104; temperature 98·4° F. Says she had a bad night; complaining of pain in head, and still "rambles" a little; asks for various things, and when they are given to her she is not satisfied with them.

Feb. 22nd.—Has a small amount of feeling in the fingers of left hand, but none at all in the left arm and leg; still has delusions. About this date I was unfortunately laid up with an attack of illness, and during my absence from duty the medical man in charge dismissed the patient, so that I was prevented from prosecuting any further investigations concerning this most interesting case on resuming work.

On July 26th, 1877, I had an opportunity of seeing the patient in the "imbecile wards" of the Union Workhouse at Walton, to which she had been removed, as stated above. Her condition then was as follows:—Greatly impaired sensibility all down left half of body, not so absolute as when under my care. She complained of "numbness" in this side, and a sensation as of "pins and needles" pricking her. I could touch the conjunctiva of left eye without causing her any annoyance. Tickling the mucous membrane of left nostril was not felt. She had very little feeling on the left side of the tongue, and the buccal mucous membrane and gums of the left side were almost entirely anæsthetic. She informed me that she could not taste her food in the left side of her mouth. Impaired vision of left eye; left pupil slightly larger than right; no ptosis on this side, as was observed on former occasions; no reflex movement on tickling sole of left foot. On asking her to grasp my hand with her left one, she did so in a very irregular, choreic and jerking manner, and in the operation quite unconsciously scratched my hand with her nails. Grasp firmer than it was. On requesting her to close her eyes, and touch any given part of her left side, such as the left eye, with the left hand, she executed this manœuvre in a very clumsy manner, groping about for several moments before she found the part. On the right side she could immediately lay her hand on the required place. Her mode of progression was very imperfect—in fact, she could not walk without support. She seemed to have no confidence in herself. There seemed to be slight paralysis of the muscles of the left leg, but none in the arm. *There was no pain over either ovarian region.* She informed me that occasionally she suffered from very severe pain in her forehead. Her mental condition was much improved; she talked quite coherently and rationally, and answered my questions without hesitation. She recollected quite well having been under my care.

Pulse and Temperature Table.

Feb. 1877	12 M.	12 E.	13 M.	13 E.	14 M.	14 E.	15 M.	15 E.	16 M.	16 E.	17 M.	17 E.
Pulse	—	124	120	108	112	112	116	—	100	100	100	—
Temperature		°	°	°	°	°	°		°	°	°	
Right axilla	—	98·2	100·4	99·8	99·1	99	98·6	—	98·4	98·8	98	—
Left axilla	—	98	100·2	99·4	98·9	97·8	98·6	—	97·4	98	97·9	—

Remarks.—Dr. Reynolds[a] observed, in cases seen by him at Professor Charcot's clinique, diminution of the special senses of

[a] Hemianæsthesia in the Clinique of Professor Charcot. Lancet, May 12, June 2, 1877.

taste, smell, sight, and hearing on the anæsthetic side. A diminution of taste and seeing was found to exist in our case, but I did not test the senses of smell and hearing. Also a fall of temperature was observed, which amounted on two occasions to 1° F., and only once was exactly the same on both sides. Professor Charcot draws attention to the lowering of temperature on the affected side, as also to pallor of the surface—a condition which was not observed in the present instance, but which possibly might have been noticed had the inequality of temperature been greater. The latter physician also observed that blood did not issue from punctures made on the anæsthetic side—a point which it did not occur to me to test, but which, I think, would not have been found to exist.

Dr. Reynolds saw one case in which muscular power was "slightly in excess on the right (anæsthetic) side," whereas in our case there was not only a deficiency of muscular force on the affected side, but also loss of co-ordinating force, and a lack of knowledge of the true position of the limbs. This lessening of muscular force was real, and not merely the natural weakness of the left side of a "right-handed" person, as compared with the right. Charcot has seen these conditions in some of his cases.

Dr. Reynolds also mentions a case with greatly reduced temperature and diminution of co-ordinating power, together with uterine disturbance. The symptoms remained after the abatement of the uterine trouble, but were entirely and rapidly removed by three applications of faradisation. This case bears a resemblance to ours, except that in it there was uterine derangement, and in ours there was defective cerebration.

This physician believes that in many cases "the condition is one of morbid, mental (higher cerebral) change; that the phenomena are maintained by mental and moral impressions, and by suggestions from outside; that the arrest of the attacks is one of a series of events well known, but under different phases, in cases quite free from ovarian change or anæsthesia; and that the cure is due to a mental and moral impression coinciding with a course of treatment or a something done, and that it is not due to any electric, mesmeric, or galvanic current."

The above remarks refer chiefly to hysterical hemianæsthesia.

In Vol. II. of the "Medico-Chirurgical Transactions" there is recorded a case, communicated to the Society by Dr. Marcet on Dec. 18th, 1810, in a very interesting paper by Dr. Vieusseux, of Geneva, who himself was the subject of the remarks. The

principal features of the case are briefly as follows:—Dr. Vieusseux was sixty-two years old when, on Dec. 29th, 1807, he was attacked with pain under the third lower molar tooth of the left side. This pain shortly subsided, but was followed in a few days by giddiness, difficulty in swallowing liquids, weakness of left side, and numbness of hand and leg on that side. When walking he had to be supported by two persons, and dragged his left leg. Could move all his limbs in bed; intellect unimpaired; whole of right side (except side of head and face) insensible to scratches and pinches.

At the beginning of April, 1808, the *left* side of his head and face was quite insensible to pricks and scratches. Left eye partly closed; hand and fingers numb; sensation of weakness in whole of left side; left leg "dragged." The feeling of the right side of head and face normal; the whole of the rest of the right side was perfectly anæsthetic. There were depraved sensations of temperature on the right side, cold objects feeling lukewarm; air of room felt extremely hot to right hand; hot objects did not feel so to right hand, but cold; sense of touch in right hand not lost—that is, he could feel the pulse, for instance, with this hand, and determine its frequency and force; had a sensation of cold water continually streaming down his face; usually slept well, and arose in the morning with a clear head, but after being up for a short time he experienced a feeling as if "after looking steadfastly at the sun." This sensation vanished after dinner, especially if he had some good wine. Voice was very feeble; he derived some benefit from the use of electricity; his general health improved, and his muscular power was restored. After a term of three years the "insensibility of the left side of face had gradually diminished," but there was no improvement on the right side of the body.

The case just mentioned agrees in most of its essential points with what we experienced in our case, but there is one remarkable difference, which some writers have considered to be a distinguishing feature between hemianæsthesia, the result of cerebral disease, and that whose origin is traced to hysteria. The difference I wish to draw your attention to is, the anæsthesia localising itself on the left side of the head and face, while existing on the right side of the rest of the body. This crossed condition of anæsthesia does certainly appear to me to be an argument in favour of cerebral disease, but we must not suppose that every case in which this alternate anæsthesia does *not* exist, must, of necessity, belong to the hysterical or alcoholic forms of the affection.

In *The Lancet*, August 24th, 1872, amongst the "foreign gleanings," there is a short notice of five cases of hemianæsthesia, with unilateral trembling, communicated to the Biological Society of Paris by Professor Charcot. The patients were all advanced in years, and were seized more or less suddenly with hemiplegia, hemianæsthesia and hemichorea following. *Post mortem* examinations made in three cases revealed a sclerous or hæmorrhagic lesion of the optic layer, radiating in a greater or less degree towards the cerebral peduncles and the corpora striata. Charcot advances no explanation of the hemianæsthetic phenomena, but thought, from his cases, there existed in the nervous centres a special locality, lesions of which caused unilateral anæsthesia.

In the *Gazette Hebdomadaire de Médecine et de Chirurgie*, 1873, there is published a case of unilateral loss of sensibility by Magnan, ascribed to chronic alcoholism. There was found to be in this case a loss of temperature on the affected side to the extent of between 2° and 3° Centigrade, as also loss of sensibility of the buccal mucous membrane, and of the palpebral and sclerotic conjunctivæ, but with very slight impairment of corneal sensibility.

The last quoted journal of 25th June, 1875, contains a paper on this subject by Dr. Soulier, in which the author remarks:—"Sensibilité tactile simple un peu emoussée, mais cependant conservée dans tout la moitié gauche de corps; insensibilité complète à la douleur et à la température. Cette anesthésie occupe non-seulement la peau, mais les muqueuses gauches, narine, conjunctive, muqueuse buccale, muqueuse du gland. La cornée seul conserve un certain degree de sensibilité. La sensibilité eléctrique est diminuée dans les mêmes points." M. Soulier ascribes the lesion producing the symptoms in this case to a point situated to the right side of the pons, and mentions, in confirmation of this theory, an experiment of Veyssière's, in which anæsthesia followed the injection of a destructive fluid in this situation.

In his "Leçons sur les Maladies du Systéme Nerveux," Charcot mentions that M. Briquet found hysterical hemianæsthesia, together with ovarian hyperæsthesia, 93 times in 400 cases. It occurred 70 times on the left side, and 20 on the right.

There are three principal conditions necessary for the clear perception of external (sensitive) impressions:—(1) A normal state of the peripheral sensory nervous filaments; (2) the tracts in the spinal cord through which sensations from without are conducted to the encephalon must be in perfect working order; and (3) the

cerebral centre (wherever that may be situated) must be in a fit condition to receive and take cognisance of external impressions. We may entirely eliminate the first of these factors as a cause of anæsthesia in the present instance, for it is hardly possible to imagine a lesion of the peripheral cutaneous nerve-fibres so extensive and so accurately mapped out as to account for the chief symptom. Cases are not uncommon of extensive anæsthesia, confined to large but localised and limited areas, resulting as the consequence of exposure of parts of the surface to a damp, cold pressure, &c., such as loss of feeling in the extremities, but these are examples of a lesion of quite a different nature from that in the case we are considering.

A lesion of the spinal cord would account for most of the symptoms, but such lesion would require to be extensive, accurately defined, and limited to the tracts whose function it is to conduct sensory impressions, and then it would be confined to one lateral half of the body, and not affect the side of the face and head.

Dr. Ferrier[a] has shown, from experiments on animals, that sensory impressions are conveyed to the brain chiefly through the opposite half of the cord to that at which the sensory root enters, and that hemisection of the cord produces diminution of sensibility on the opposite side of the body, but hyperæsthesia on the same side. However true these observations may be when deduced from experimental physiological research, in many cases, at least, I think we would be led into grave errors were we implicitly to follow the rules obtained by experiment, to the exclusion of careful clinical observation and well-conducted pathological investigation. Pathological conditions are, to my mind, by no means analogous to lesions produced artificially in the nervous centres of a healthy animal by the scalpel, galvanism, or whatever other means the physiologist may employ; and the physician who trusts for his diagnosis of cerebro-spinal disease to the symptoms derived from such experiments will often find his conjectures and "pet" theories to be entirely at variance with the actual state of affairs. It is to the accurate observation and record of symptoms during life, combined with laborious and minute inspection after death, assisted also by the results of experiments on animals, that we must look for the data on which to found a conclusion of any value at all respecting the seat of lesions in the cerebro-spinal system.

[a] Functions of the Brain. By Dr. Ferrier. Page 4.

Ferrier[a] observes that "valuable corroboration of the fact of localisation of the true tactile sensation in the cortex cerebri, as distinct from the pons or lower ganglia, is furnished by clinical and pathological investigation in man, though the special centre of tactile sensation has hitherto never, as far as I am aware, been reached by this method of inquiry. The investigations in particular of Charcot ('Le Progrès Médicale,' August, 1875), Raymond (*Idem*, July, 1875, 'Hemianesthésie de Cause Cérébrale), Veyssière ('Recherches Cliniques et Expérimentales sur l'Hemianesthésie de Cause Cérébrale,' Thèse, Paris, 1874), and Rendu ('Des Anesthésies Spontanées,' Thèse, Paris, 1875), have demonstrated that rupture or disorganisation of that part of the internal capsule or peduncular expansion of the crus cerebri which lies external to the optic thalamus, causes hemianæsthesia of the opposite side of the body. Veyssière, in particular, has established the connexion between division of the posterior part of the internal capsule and hemianæsthesia, both by clinical analysis and carefully conducted experiments on the lower animals, in which he ingeniously divided this set of fibres. Veyssière's experiments have been confirmed by Carville and Duret. In this respect both clinical and experimental investigation are quite in accord.

"It is evident, however, that the cause of the hemianæsthesia in this case is not due to disorganisation of centres of sensation, but merely to interruption of the path of transmission from the organs of sense to the sensory centres in the cortex. The separate destination of the radiating fibres here collected together is in nowise indicated."

"The experiments I have narrated clearly show that the cutaneous anæsthesia resulting from this lesion is due to interruption of the centripetal fibres which proceed to the hippocampal region. But, in addition to cutaneous anæsthesia of the opposite side, there are certain other effects which afford valuable confirmation of the sensory localisation which I have established in the brain of the monkey. Vision, as a rule, is seriously impaired, if not quite abolished, on the same side as the cutaneous anæsthesia, there being a very remarkable contraction of the field of vision, and difficulty in colour discrimination. The affection of sight is absolutely confined to the one side—*i.e.*, the side opposite the cerebral lesion. There is no hemiopia, but a pure unilateral amaurosis, or amblyopia. In this respect the results of experi-

[a] Loc. cit. Page 181.

mental investigation on the monkey and clinical observation are entirely in harmony." "Veyssière, in his experiments on the lower animals, has not been able to determine satisfactorily whether vision is affected by the lesion which induces cutaneous anæsthesia of the opposite side."

"The symptoms caused by rupture or disorganisation of the posterior division of the peduncular expansion are identical with those described under the name of hysterical hemianæsthesia, or hemianæsthesia from alcoholism, as in a case described by Magnan (*Gazette Hebdomadaire*, Nov., 1873). Not only tactile sensibility, but all forms of special sensibility, are affected on the side opposite the lesion. Smell is affected on the same side as the tactile sensibility—a fact which requires special consideration, as it will be shown that the olfactory centre proper is in the hemisphere of the same side."

"But with the exception of the paths of olfactory sensation, section of the posterior division of the internal capsule is practically, at one blow, interruption of all the sensory tracts, and is equivalent to extirpation or disorganisation of the sensory centres of the cortex."

"The differentiation of these into regions of special sense is simply a terminal specialisation of the centripetal paths which radiate from the internal capsule or foot of the corona radiata into the cortex. While we wait for confirmation, on the side of human morbid anatomy, of the localisation of special sensory convolutions—a matter, in my opinion, simply of time and care—we may regard the facts of anæsthesia of cerebral origin as the first step in this direction."

I have thought it well to quote the above passage in its entirety, as bearing particularly on our subject.

Dr. Brown-Séquard[a] expresses himself as follows:—"All that at present we know as regards localisation of function is, that functions are not localised in clusters of cells existing in a zone in certain limited portions of the brain, but belong to cells which are scattered in the whole brain and other parts of the nervous centres." In these lectures, while admitting the results of his previous experiments, he recants his proposition concerning lateral and cross sections of the cord, and explains the symptoms in a different manner. Thus the paralysis on the side of injury of the cord is

[a] Dublin Journal of Medical Science. January, 1877. Course of Lectures at the King's and Queen's College of Physicians, Ireland.

produced (according to his new theory) by irritation having origin at the injured spot, and causing a cessation of the activity of the cells below it. Then, when one mind sees fit to renounce his old theory in favour of a new, doubtless as the result of mature consideration and conviction, it is not by any means to be wondered at if diverse minds form various opinions with respect to the causation of such interesting, and at the same time obscure, phenomena.

In these lectures, Brown-Séquard brings forward cases to prove that lesions in different sections of the brain, and even in those where centres of motion are supposed to reside, may cause anæsthesia; sometimes a lesion of a given zone may produce quite distinct motor and sensory manifestations in two patients, and at others identical phenomena may result from derangements existing in portions of the brain apart from each other. Thus, he mentions a case of unilateral anæsthesia, recorded by Abercrombie, where disease in both corpora striata existed; one by Auguste Ollivier, in which disease of the thalami caused universal anæsthesia; one by Mr. Woodhouse; and one by Dr. Tailhé, in which lesion of one side of the cerebellum was the apparent originator of anæsthesia in the same side of the body.

Sir Charles Bell[a] was the first who attempted to localise the position of decussation of sensitive conductors, and the place where he supposed this occurred was the floor of the fourth ventricle.

Longet[b] tried to prove that the sensory fibres passed through the cerebellum towards the corpora quadrigemina.

The discovery of the decussation of the sensitive conductors in the spinal cord by Brown-Séquard was published in the year 1849.

This physiologist[c] divided the spinal cord of a mammal at the level of the two or three last dorsal vertebræ, and observed that *hyperæsthesia* resulted behind and on the same side[d] as the section, and that there was *anæsthesia* on the opposite side of the body. Galen had performed a like experiment, but only observed paralysis of motion as the result.

Brown-Séquard made an accurate longitudinal section of the spinal cord at its lumbar and cervico-brachial enlargements, and in the former experiment found that *total loss of sensation* in the lower extremities followed, but that the latter caused loss of sensation in

[a] Nervous System of the Human Body. 3rd ed. 1844.

[b] Anatomie et Physiolog. du Syst. Nerveux.

[c] Physiology of Nervous System. 1860. P. 31.

[d] In our case slight exaltation of sensibility was observed on the right side, while there was anæsthesia on the left.

the anterior limbs, but none in the posterior. Subsequent division of a lateral half of the cord, divided longitudinally in the cervical region, caused anæsthesia in the opposite inferior extremity.

Schoeps, Van Deen, and Stilling,[a] did not observe loss of sensibility in the side opposite hemisection.

Fodèra noticed in some cases anæsthesia on same side as section, but in others the contrary. According to Brown-Séquard, Schiff and Stilling, and other German physiologists, considered that the grey matter of one lateral half of the cord possessed the power of transmitting sensory impressions from both sides of the body; but this is disproved by the fact of anæsthesia occurring on the opposite side.

Loss of co-ordinating power on the affected side is just the condition we would naturally be led to expect from the study of nervous physiology. This condition would most certainly exist at the outset, and probably continue, to a greater or less degree, throughout the course of the affection, the patient not being able to employ the hand or leg in a useful manner without the assistance of vision.

Ferrier[b] has shown that, when the peripheral extremities of the cutaneous nerves of the lower limbs of a frog are destroyed, the animal entirely loses the power of equilibration, and "falls like a log, when the basis of support is tilted." In our case, although the symptom did not depend on extensive destruction of peripheral nerves, as in the case of the frog, the effect to a certain extent is analogous, except that, instead of being confined to the lower extremities, as in the case of the frog, it was one-sided, and, in my opinion, of cerebral origin, and not depending on a peripheral cause.

As far as I have been able to learn, there seem to be three morbid conditions which determine the occurrence of hemianæsthesia, viz.:—(1) Hysteria, usually associated with ovarian hyperæsthesia, and flaccid paralysis in the limbs of the side affected by the loss of sensibility, and not unfrequently followed by early "contracture" of either the arm or leg, or both.—(Charcot.) (2) Encephalic lesion, situated in a certain portion of the brain, for the most part also accompanied by more or less motor paralysis, either on the affected or on the opposite side of the body; and (3) chronic alcoholism, the distinguishing features of which I have not been

[a] Magendie's Journal de Physiologie. Vol. III., pp. 191—217. Functions of the Brain. P. 48.

[b] Loc. cit.

able to determine, but which bears a very close resemblance to the two former causes.

Now comes the question—under which of these three heads is our case to be classed? The attempt to solve this is a point I approach with much diffidence, and one I would much rather leave undiscussed; as with my very limited experience of this affection, and in the absence of *post mortem* evidence, it may appear presumptuous on my part to venture to assign it its proper place as regards its primary origin.

I am inclined to the opinion that the affection owes its cause to a lesion of some defined region in the encephalic organ. The ptosis, dilatation of the pupil, mental derangement, pain in the head, the relief afforded to the last two symptoms by the treatment adopted (especially the application of ice), and the absence of well-marked hysterical symptoms, such as ovarian hyperæsthesia, hystero-epileptoid convulsions, and the not-to-be-forgotten, if once seen, manner of such patients, in my mind, all point in this direction. Without wishing to dogmatise, I may state that possibly the brain lesion may exist in the zone indicated by Ferrier, or thereabouts, but it must be limited almost entirely to the sensory centre for the left side, and not encroach at all, or very slightly indeed, on the centres which are supposed to preside over motion.

In the very first instance on seeing the patient, and examining into her case, I came to the conclusion that there was some cerebral lesion on which the symptoms depended, but I did not venture on an opinion with respect to its accurate situation; and even now, although I have consulted every authority on the subject on which I could lay my hands, I do not attempt to localise the lesion, but must confess that, after reading some of Brown-Séquard's remarks, and having heard this eminent physiologist deliver a short course of lectures on the symptoms of brain-disease in this town, my belief in the localisation of certain functions in certain defined areas of the brain is very much shaken. It appears to me that we are as yet but on the threshold of nervous pathology, and it will require the laborious work of many single individuals, and they devoted to their work, ere we shall have materials enough collected upon which to build, as on a foundation, the noble superstructure of a true nervous pathology.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Clinical Lectures on Diseases of the Urinary Organs, delivered at University College Hospital. By Sir Henry Thompson. Fourth Edition. London: J. & A. Churchill, New Burlington-street. 1876.

Having noticed the last edition of these instructive lectures, we shall merely take a few passing glances at this somewhat enlarged edition.

This volume contains not only the course of lectures delivered by Sir Henry Thompson at University College Hospital in 1875-6, but also several new lectures, making twenty-four in all, instead of twelve, as in the first edition. Among the practical hints to be found in the lectures, not the least useful is that relating to the mode of obtaining a specimen of urine for examination. The plan the author follows should be always practised, for the exact source of many of the products found in urine cannot be determined unless some such precaution is taken. He rightly insists that the source of error must be first eliminated "by flushing the urethra, so to speak, by passing the first two or three tablespoonfuls into a wine glass, while all that follows is passed into a separate vessel, such as a tumbler; you will generally have a sample of urine that you can rely on for examination." Owing to the omission of this step he has "known a patient treated for pyelitis who had nothing but a profuse discharge from the urethra."

The author adheres to the opinion which he expressed regarding the endoscope, in his work on "Stricture of the Urethra." "If a man," he remarks, "has a good and tolerably practised hand, with a fair share of intelligence, I do not think he will gain a good deal by the endoscope; and if he has not, I think it will be of no use at all. There are some few cases in which he may find it of value; but do not expect that the endoscope is to work marvels in the diagnosis of surgical diseases of the urinary organs. In ninety-nine cases out of a hundred you can arrive at the necessary informa-

tion without it. And it is not the easiest thing in the world to apply." He, however, does ample justice to the ingenuity displayed by Dr. Cruise on his instrument, and he also specially alludes to Mr. Warwick's simple endoscope, which he found nearly as useful as the more expensive and elaborate instruments.

The second lecture contains some interesting remarks on the structure and functions of the urethra. He correctly observes that the urethra, in its quiescent state, is not a tube, strictly so called, but "*a continuous closed valve, capable of transmitting fluids and solids in one direction only, and transmitting nothing whatever in the opposite direction, except in obedience to applied force.*" When distended, however, by the passing urine, and its walls, we may add, eccentrically separated during erection, it becomes "a tube, if you please, for this short time and this only."

His description of the arrangement of the canal, according to our observation, is imperfect and not altogether accurate. For instance, he is silent regarding its somewhat spiral direction and its longitudinal plications. Carefully prepared cross-sections teach us that its greatest diameter in the anterior part of the glans is vertical, and that it gradually changes its position, tracing it from before backwards, becoming transverse in the body of the penis. The cross-section in this portion of the organ displays a transverse fissure, having shorter fissures leading from it, which are separated from one another by the plications or folds. It is to this folded disposition of the inner portion of the wall of the canal that we attribute the difficulty of bathing its whole surface with an injection, rather than to the close apposition of the walls the author describes. An injection to be most effectual should be so used that its dilating pressure may unfold the plications. If this be not effected, the bottom of each secondary fissure will not be disturbed.

We agree in opinion with the author that spasmodic stricture, as it is called, is a "refuge for incompetence," and that, although "spasm may prevent the urine from going outwards," he does not know "that it ever prevents the instrument from going in. In most cases it is failure of the hand, not spasm of the urethra." We think with him also that spasm "is a useful excuse; that it has a sort of foundation in fact, and may thus be often a better explanation for the patient than anything else, when the instrument does not pass."

Our experience coincides with that of the author regarding the deceptive results that may follow upon the use of "bulbous-pointed

flexible explorers." They are in fact liable to deceive one into the belief that stricture is present. "If not drawn out accurately in the axis of the passage, you may feel a check, and readily find what you believe to be a stricture in the most healthy urethra." If not withdrawn with great care they jump, as it were, in the canal, and may lead to serious error. He, however, has used "small bulbous instruments in metal for the diagnosis of narrow and confirmed stricture." We should say they could scarcely be required for so plain a case. It is to be wished that the author's commendation of the French bulbed flexible bougies and catheters will lead English surgical mechanicians to improve their construction. Possibly the best made do not reach Ireland. Be this as it may, we rarely find these "French" instruments capable of bearing with impunity more than a few introductions. The catheters usually crack at the eye, and should then be relinquished.

The author contradicts himself remarkably at page 53, where he speaks of anatomy in connexion with the surgery of the urethra. He writes—"I advise you, in passing an instrument, to forget all about your anatomy," whereas he devotes a whole lecture on the construction of the urethra (sect. II.), in which will be found the following paragraph:—"At the outset, then, let me say that it is absolutely essential that you should have a tolerably accurate knowledge of the nature and functions of this so-called tube."

The author speaks of the impossibility of applying, with "Holt's" instrument, "the distending force to any portion of the urethra in particular." But he seems to forget that in this dilator the conical wedge, through means of the blades, acts on the contracted portion of the canal and the meatus, and does not, as he imagines, act equally on the whole canal. In fact, it expends its force on the stricture and the meatus only. This observation of his, apparently designed to be introductory to the description of his own dilator for what he calls "over-distending the stricture," he brought out some years ago. This dilator is so well known it is unnecessary to describe it here; but we may remark that it is, in reality, the dilator of his "friend," Civiale, disimproved by him.

Civiale's object in the construction of his dilator was to have the greatest amount of separation of the blades to correspond to the ordinary seat of organic stricture. The author has so far copied him, but instead of forcing the blades asunder by means of two bars, he does so with one only. This necessitates clumsy strong blades, lest they should yield to the pressure of the stricture.

Moreover, when under dilatation with this instrument, unless the stricture corresponds to the separating bar, it will be situated on an inclined plane and liable to painful friction.

Van Buren was probably aware of these imperfections, and was thereby led to modify the author's dilator, and add a second bar. By doing so he was enabled to reduce the gauge of the instrument, and render it more suitable for general use. Indeed, Arnold, of London, illustrates an instrument of this make in his catalogue. This, we need scarcely say, is what we shall call inventing backwards to the original dilator of Civiale.

Talking of internal urethrotomy in the treatment of severe and obstinate strictures, he has found nothing so "efficient, so safe, and so certain." Any one who has had much experience in the treatment of such strictures must concur with him on the following point in practice:—"Anything," he inculcates, "short of complete division of the hardened tissue is not efficient."

We cannot, however, endorse his recommendation to use the simple *bistourie cachée*, as he calls it, in the treatment of stricture at the orifice. In our opinion, a relapse would soon follow the use of this instrument, and we therefore think that a more elaborate procedure is required therefor, such as that of Colles, or one of its modifications.

The defects of Maisonneuve's urethrotome are shown, and the author's remarks thereon are, to our mind, conclusive against it. He says:—"My objection to this instrument is simple and distinct, and I do not hesitate to say is fatal to it in respect of its efficiency for a case of confirmed and indurated stricture, such, indeed, as constitutes that form of the disease which most requires treatment by incision. Now, what happens with Maisonneuve's instrument? The blunt apex, which enables the blade to pass without injuring the healthy urethra, fails to cut the most elastic or yielding fibres of the stricture, which, by reason of their yielding character, permit the blade to pass through by stretching them."

Here we may observe that Voillemier speaks of this urethrotome thus:—"At the hospital, Beaujon, one of his colleagues, performed urethrotomy with M. Maisonneuve's instrument. The patient died, and at the autopsy the canal was found incised its whole length, and, by a singular chance, the contracted part was the least deeply incised; and M. Icard mentions in his Thesis, *Des retréc. de l'Urèthre*, that he has seen the instrument break in the attempt to engage it in a stricture."

The admirers of the original instrument may insist that in Voillemier's case the surgeon was at fault; and the instrument in that of M. Icard, still they are of some argumentative value in a question of this kind. Voillemier, we should state, has considerably improved Maisonneuve's urethrotome, by sheathing the knife with a sliding plate, by which he was enabled to have the upper angle of the cutting blade made sharp instead of blunt.[a]

The author shows his discrimination by giving the preference to Civiale's urethrotome, and to the operation from behind forward; but we prefer M. Caudmont's modification of Civiale's instrument, in which the mechanism for disengaging the blade from and enabling it to re-enter the olive is more simple. The back of the blade also, instead of being sustained by a very narrow slip of metal, which may become deranged when the stricture opposes a great resistance, reposes solidly upon the inclined plane of the mandrel, and, lastly, the blade rises perpendicularly from the bottom of the olive.

The author has performed "more than two hundred" internal urethrotomies with only two fatal results, which probably is not a smaller mortality than Mr. Holt has had from the use of his modified Perrève's dilator indiscriminately used.

We believe with the author that for unyielding strictures "this operation gives more lasting results than any other." He wisely does not claim for it the power "to remove organic contraction. Such a result is impossible. The treatment has yet to be devised which will remove absolutely, and for ever, the occurrence of re-contraction in a patient once the victim of an organic stricture."

In his observations on catheters he reminds us that "some have been made with 'wings' at the vesical extremity in order to retain it in place, but these mostly irritate the urethra and increase the difficulty in passing it." By-the-by, the careless jumbling of the singular and the plural in this paragraph is surprising in so cautious a writer as the author. Passing this over, the practical character of the observation is undeniable. These catheters not only irritate the urethra, but the neck of the bladder also. Moreover, should the surgeon fail to enter the bladder, the reversing of the wings in the urethra in the withdrawal of the catheter can scarcely fail to cause excruciating torture.

The experience of the author regarding puncture of the bladder for retention leads us to suspect that in some London institutions

[a] See a review of Sir Henry Thompson's Treatise on the Pathology and Treatment of Stricture of the Urethra, in the number of this Journal for August, 1870.

this operation has been too frequently performed. He tells us that his experience of "puncture of the bladder for retention of urine is, for prostatic enlargement twice, and for retention from stricture four times; this is during a period of more than twenty years."

As for ourselves, whenever we hear of an institution having many operations of this description, we assume that in it the tactile sense is deficient.

In the description of the modes of tapping the bladder there is no allusion to Voillemier's operation, the subpubic method of that surgeon. Such an omission is unpardonable in a specialist of the author's great repute.

He is, with but one exception, exceedingly accurate in his account of the course urine takes when extravasated. For example, he states that the urine cannot "get into the thighs, because it is checked by Poupart's ligament." This can scarcely be correct, as it is on a plane anterior and superior to the ligament. At all events, it is stopped at the groin in almost every case. An exception, however, has been recorded by a predecessor of the author in University College Hospital, the late Mr. Morton. In this case the urine led to sloughing of Scarpa's fascia, and freed a passage for itself to the front of the thigh, along which it descended. Indeed, it is this fascia that forms the barrier to the descent of the urine, and not Poupart's ligament, as the author states.

Every surgeon of experience in stone cases must, we feel, admit the truth of the following observation—"that modern lithotrity will, in most cases, be safer than lithotomy. Some years ago the contrary decision would, no doubt, have been preferable."

Were it not for one circumstance, to which we shall soon refer, we would be inclined to join the author in the following aspiration on the decadence of lithotomy:—

"I hope," he says, "you will live to see the day when lithotomy for adults will be one of the rarest operations in surgery. I do not suppose I shall, but I do expect to live to see one thing, and that is, lithotomy becoming less common year by year. I do not say that I look forward to that with unmixed pleasure, for it is a grand operation, demanding skill, self-command, and sometimes all the resources of an experienced and able man. It is one of the best possible tests of a good surgeon, and, looking at it from that point of view, one cannot desire its discontinuance; but it will disappear, most assuredly, and as it will be for the benefit of humanity that it should, we must acquiesce in the result."

Under these circumstances and their concomitant loss of experience, what is to become of those adults whose bladders contain foreign bodies introduced from without, and which defy the capabilities of the lithotrite?

We cannot avoid paying a tribute of praise to the ingenuity and skill displayed by the Messrs. Weiss and Sir Henry Thompson in the construction of the lithotrite which bears the author's name. This instrument is now, he tells us, in general use throughout Europe; "and of course, as would naturally happen, various 'modifications' of it have been made by instrument makers and others, with the result only," as far as he has seen, "of impairing its power in some way, and evidently devised through ignorance of the proper mode of using it." Some of these modifications are ludicrous attempts at improvement. One in particular has a second handle attached to the author's cylindrical handle, which interferes with its rapid rotation in the fingers while searching for and seizing the stone, two of the most critical steps in a lithotrity operation.

No more convincing evidence could be adduced of the perfection the manufacture of the lithotrite has attained in the hands of makers such as the Messrs. Weiss than the fact that the author has almost altogether relinquished the fenestrated instrument. "Such an instrument," he inculcates, "should be used as little as possible. I never use it now, although I did so many years ago. Certainly for eight years I have not employed one."

It is his experience that "flat-bladed non-fenestrated instruments, properly handled, will crush every stone that ought to be crushed, and what is beyond their reach should, as a rule, be reserved for lithotomy."

Of Clover's apparatus he speaks thus:—"It is a very fascinating apparatus, and looks so well that there may perhaps be some risk of its being used when not required;" and, as he further on observes, its use "is rather trying for the bladder, and it costs rather more pain and time than an ordinary sitting for lithotrity." There are not many cases in which it is required. However, as the author remarks, when a large crushing is practised, it is desirable to remove the *débris* and small fragments, for which purpose it is invaluable.

He has recourse to anæsthesia in lithotrity much more than formerly, which enables him to do a larger amount of crushing than when the patient was conscious—"a course which, while it is

permissible or advantageous in practised hands, is not to be necessarily recommended to the young operator."

He prefers ether to chloroform, used as Mr. Clover administers it—*i.e.*, by preceding the ether vapour with nitrous oxide. When we reflect upon the great number of deaths that have followed chloroform administration, the recklessness of surgeons who persist in its use is not only inexcusable but criminal also.

For some reason or other best known to himself, the author, in his comparison of his last 100 stone cases with Cheselden and Martineau's cases of lithotomy, draws his deductions from lithotrity and lithotomy cases combined. Now, if we take his nine cases of lithotomy, we find he had two deaths—a mortality of unfavourable comparison with that of Martineau, but below that of Cheselden. We speak of operations in middle age and upwards. So much has been lately written on the median operation of lithotomy, it may interest our readers to have the opinion of the author regarding it:—

"Now, I am bound to say that formerly, judging theoretically, and performing less lithotrity than now, I had a leaning to median methods, being disposed to think that they would be attended with less hæmorrhage than the others. But I do not find this so in practice, and I have arrived at the conclusion that there is quite as much bleeding as in the lateral operation. I attribute this to the bulb. I regard the bulb a large artery to all intents and purposes. You cut into that spongy tissue—not in all cases, but in some—and there is as much bleeding as if you cut the artery of the bulb, and more difficulty of controlling it. The bulb must be cut more or less in the median operation."

Mr. Cadge, of Norwich, also, who, "after a careful and extended analysis of the results at Norwich of the median operation, says:—"My present experience teaches me that it is advantageous and suitable only for those patients in whom the stone is of small size. . . . Beyond this limit the path becomes thorny and dangerous."

The following precepts should be engraved on every surgeon's memory:—"Detect the existence of a stone early; it is always somebody's fault if not found early. The stone will then be small. It may be crushed at one or at most two sittings, with almost no risk. No question of cutting need ever arise; the presence of kidney disease need scarcely trouble you." He remarks "that all those attempts which have been made during the last fifty years, and may still be making, to perfect lithotomy for small stones are

useless and obsolete. We cannot require an operation by cutting for small stones," and, therefore, he will add that the days of the median operation will probably pass away before those of the lateral.

The teaching of the author regarding the treatment most suitable in the early history of calculus, is worthy of attention. He strongly advocates a course of Friedrichshalle and Carlsbad waters, either singly or combined, in preference to the popular Vichy and other alkaline waters in the uric acid diathesis. Indeed, we consider that there are good reasons for supposing that the persistent use of Vichy water has a tendency to facilitate the passage of acute gout into the atonic retrocedent form.

With regard to the future of operative surgery for stone, we find the following, we hope not too sanguine, observations of the author:—

"I commence, then, boldly, by saying that I have come to the conclusion that stone in the bladder, like many other maladies, is an exterminable one. I believe that this grave malady, which has tested surgical skill during two thousand years and produced a ponderous literature, which has been dreaded beyond all things by mankind, and has been the source of untold suffering to thousands in every age, is, nevertheless, a malady which may be exterminated—so far, that is, as it is a painful and dangerous one."

This is rather obscure. He commences by stating that stone is exterminable, which is a final result, and ends with the qualification, "so far, that is, as it is a painful and dangerous one."

Talking about the numerical results of calculus cases in relation to mortality, "I find," he says, "that there are some persons who persist, in connexion with this subject, in presenting to public consideration numerical results in which the cases of children and of adults are indiscriminately mingled." "It must be either from gross ignorance of the relative degrees of hazard attaching to the two sets of cases, or from an intent to mix as large a proportion as possible of children's cases with those of adults for the purpose of making a small mortality for the total. . . . Before puberty, lithotomy is a notoriously safe operation; and, at most, not more than one death occurs in sixteen cases. Among adults the operation is always hazardous, . . . about one death in every six cases, from puberty to fifty-eight years; and from that to eighty, about one in every three and a half cases."

The author has evidently fallen into an error regarding the handle of his lithotrite, and that of his sound, which he says he

"originally designed;" the fact being that this is the identical handle of the stricture explorer described in 1832 by Amussat (*Leçons sur les rétent. d'urine*).

In Lecture XX. the author describes an operation for the permanent relief of patients suffering from advanced prostatic disease, his object being to avert death "by establishing a *permanent* outlet for urine when the urethra is no longer practicable, through disease of the prostate and bladder." The operation consists in passing a "large sound, hollow throughout, with a strongly-marked curve, . . . until the end can be felt just behind the symphysis pubis." An incision is then made, enough to admit the index finger tightly, in the median line, at the upper margin of the symphysis. The linea alba is next slightly divided by the point of a bistoury, and when the end of the sound is clearly felt by the finger, a little opening is made so as to expose the point. The end of the sound is then made to protrude in the wound, the bulbous stylet is withdrawn, and the tube is passed, in its whole length, into the hollow channel of the sound. The sound is now withdrawn completely by the urethra, and the passage of the elastic tube into the bladder is insured. The tube is finally to be securely fastened with tapes and plaster, and to be worn in bed for a few days until the parts are consolidated, and the patient can move about with safety. He has performed this operation but three times. The first patient who was relieved by the operation died in from four to five months. The second, a medical friend of the author, upwards of seventy-five years of age, lived three weeks only; but a life of torture was exchanged for one of comfort for his few remaining days. The third patient had cancer of the prostate and bladder, and died in fourteen days. He also was so relieved by the operation that he gained long periods of sleep, which he had not had for months before.

We consider the author strictly correct in his opinion regarding the non-absorbing power of the mucous membrane of the bladder. It "appears," he says, "to have no absorbing power, so that you need not be afraid of the quantity of anodynes introduced into the bladder." We have seen, and have ourselves frequently injected twenty grains of extract of belladonna into the bladder without any appreciable specific influence of the drug; and the author has injected *four drachms* of liq. opii. sed. into the bladder of a patient with chronic cystitis, on four separate occasions, without giving any sign of the presence of opium in the system. He speaks

disparagingly of the use of mineral acids with the object of acidifying the urine, and has more faith in benzoic and citric acids. We prefer the benzoate of ammonia to the benzoic acid itself, but he is silent regarding this remedy. It should be remembered that persistent "alkali in the urine is, in nineteen cases out of twenty, a *local* formation in the bladder," and that the urine is secreted "acid enough." This was many years ago insisted upon by Dr. Rees, to whom the author does not allude. For juvenile incontinence of urine he is in favour of belladonna, either alone or combined with strychnia. Should the former be used it should be given in full doses. We have, however, seen it frequently fail, age alone effecting a cure.

The author loses his gravity at page 351, becomes satirical at the expense of the microscope, and writes thus:—"Some of the best 'cancer-cells' I ever saw in my life were collected from a patient's urine, and placed under the microscope by an eminent microscopic observer for the purposes of a very important consultation, at which I assisted. After a careful local and general examination of the patient, I admitted the beauty and perfection of the microscopic observation; but, on larger grounds, denied the existence of cancer in the bladder; and the ultimate result, happily for the patient, confirmed that view and disproved the cell."

Although we think it would be rash in the extreme to rely upon the characters of cells found in the urine in such a case, we, nevertheless, consider the author's logic most defective, for it does not necessarily follow that because the microscopic observer was "eminent" that he was accurate also. We infer, from these remarks of his regarding the cancer-cell, he is unaware that so much stress is not now laid on the cell as a diagnostic, as upon other characters of morphological structures. Contradictory as it may appear, a few lines further on in the work he admits the value of the microscope, as an adjuvant in diagnosis under other circumstances:—"Most valuable," he observes, "as is the microscope in this great class of maladies, ranking next, and very near to, the sound itself, never let it obscure for you those broad features of the case which are to be determined by the unassisted eye and touch, as applied to the body, and to the urinary secretion itself, through the means of reagents. But when you find, as sometimes happens, distinct masses of soft, almost semi-translucent structures, of considerable size, passed by the urethra at micturition, and discover on examination that these evidently consist of rapidly-

formed cell-growth, the cells of large dimensions, and containing two or three nuclei, the observation will go far to confirm your suspicions of cancer, aroused by pre-existing symptoms."

He should have told those to whom this lecture was addressed how it can be proved that cell-growth has been rapidly formed. His remarks are far too obscure for the student. His mode of dealing with blood coagulated in the bladder is, probably, the safest that could be followed; and in his remarks on the abuse of Vichy water we entirely concur.

The concluding lecture is a reprint "of directions for the examination of the urine, which" he "drew up several years ago and printed separately for the use of" his class. These, as far as they go, are very practical, and, together with a very copious index, bring this excellent work to a conclusion.

WORKS ON TYPHOID FEVER.

1. *On Some Undetermined Points in Typhoid Fever.* By David Cullen, M.D.; Surgeon-Major, A.M.D. London: Kimpton. 1877. Pp. 125.
2. *Typho-malarial Fever: Is it a Special Type of Fever?* By J. J. Woodward, Assistant-Surgeon, U.S.A. Philadelphia. 1876. Pp. 44.

We have here two *brochures*—one from a British, the other from an American military surgeon, and both illustrate the valuable service which may be rendered to State medicine by the medical officers of the armies of great nations. Military medical officers have opportunities of making observations upon the cause, progress, and variations in epidemic diseases which are not possessed by civil practitioners. We are glad to find that these opportunities are now being utilised to a considerable extent.

Dr. Cullen's paper was read before the Southampton Medical Society in December, 1876, and mainly deals with two questions—

"1st. Its etiology, as regards individual cases, and the causes influencing its extension, either as a constant endemic disease or as occasional epidemic malady.

"2nd. The forms it sometimes assumes, whether as marked by other concurrent specific or non-specific miasmatic conditions, or as developed into so-called hybrid fevers."

Dr. Cullen makes good his right to discuss these questions by a reference to his twenty-five years' experience at home and abroad—in the Crimea, India, the Mediterranean, and all parts of North America. The author quotes many authorities, but, after all, gives but little of his own experience, and expresses no decided opinion as to the generation of the poison *de novo*. In discussing the second proposition, Dr. Cullen says:—"The Irish school, as represented by Graves, Stokes, Kennedy, Gordon, Sharkey, and others, have either supported the view of the two fevers [typhus and typhoid], being the result of a single poison, or else that the two fevers may be so united that they cannot be distinguished—typhus cases occasionally exhibiting ulceration of Peyer's glands and all the usual abdominal symptoms of typhoid, and enteric cases coming from the same family and room as maculated typhus with the characteristic rash of the typhoid type."

Although Dr. Cullen quotes some opinions in favour of the non-identity of the two fevers, yet we must protest against the above statement being considered as representing the views of the "Irish school," which it certainly will be taken to do by an ordinary reader of Dr. Cullen's paper. Every Dublin physician admits the possibility of the co-existence of the two forms of disease, but very few believe in their identity, or even admit their close relationship. We are afraid Dr. Cullen has not taken much pains to ascertain the present opinions of Irish physicians on this subject.

Assistant-Surgeon Woodward's paper deals with the very important question—Is there such a special disease as typho-malarial fever? Mr. Woodward's remarks are chiefly founded on the experience collected by the medical officers of the army during the American civil war, when about 50,000 deaths were caused by camp fevers.

Mr. Woodward informs us that so early in the campaign as the fall and early winter of 1861, reports began to come in that a new form of fever was prevalent in the American camps. At this time the great majority of the army surgeons were civil practitioners who had entered the service. All of them were well acquainted with ordinary typhoid fever, and these men soon called attention to the fact that the fevers they had now to deal with differed materially from those to which they were accustomed at home. A careful inquiry was instituted, which resulted in the adoption of the opinion that, "while a certain number of cases of ordinary typhoid fever existed in the army, the large majority of the febrile

cases were *bilious remittent fevers*, which, not having been controlled in their primary stage, have assumed that adynamic type which is present in enteric fever."

This form of fever having increased to a formidable extent, especially at the siege of Yorktown and in the swamp of the Chickahominy, Mr. Woodward was appointed, with a medical board, to inquire into the nature and causes of this disease. The result of this inquiry was to drive Mr. Woodward to the conclusion that "the prevailing fevers of the army of the Potomac were hybrid forms, resulting from the combined influence of malarial poisoning and of the causes of typhoid fever"—in fact, enteric fever modified by ague. This conclusion was so important that Mr. Woodward pursued the question further, and has carefully studied all the records of febrile pestilences which attacked armies. He then follows the experience of his professional brethren in America, pointing out how these forms of fever had been met with by various American physicians, and declares his opinion (formed when he investigated the nature of the fevers affecting the army of the Potomac), to be fully borne out by all the evidence he can collect, and finally answers in the negative the query which serves as the title of his paper. We have seldom read a paper which gives greater evidence of careful investigation and logical discussion of each detail necessary to the answering of the question proposed for discussion. We should mention that this question was one of those specially put down for debate at the Medical Congress connected with the American International Exhibition of 1876.

T. W. GRIMSHAW.

Medicinal Plants. By ROBERT BENTLEY, F.L.S., and HENRY TRIMEN, M.B., F.L.S. London: J. & A. Churchill. 1876-77. Parts 11 to 21.

THE execution of the plates in this publication has, we think, improved, when compared with some of the earlier numbers—and, in many cases, we tested the faithfulness of the drawings by naming the plants correctly from a glance at the figures.

We heartily wish the enterprise the full measure of success it deserves, and we believe that the modest anticipation expressed in the advertisement will be more than realised, that this work "will prove of use to botanists, pharmacists, and medical practitioners,

and constitute an almost necessary accompaniment to the existing treatises on Pharmacology and Therapeutics."

We were interested to observe in Part 15 a full plate of Eucalyptus globulus; and, in Part 16, a fine illustration of Rheum officinale, the true source of rhubarb root. This plate was drawn from a plant in Kew Gardens, furnished by the late Mr. D. Hanbury, who was the first to grow this plant in England, in 1873. Among the 22 plates in the last three parts are several figures of plants occurring in the U. S. P., and I. P., although not included in the B. P. The most interesting one, in connexion with the recent advocacy of the drug in this country, is that of Gelsemium nitidum, the wild yellow jessamine of the U. S.

In part 20 is a fine drawing of Ferula (Euryangium) Sumbul, the lately recognised source of the Sumbul root of commerce.

About half of this important serial is, we understand, now issued, and, when completed, it will form a most valuable contribution to the scientific study of Materia Medica.

Étude sur les Principaux Produits Résineux de la Famille des Conifères. Par A. HERLANT. Bruxelles. 1876. Pp. 82.

A CLEAR and well-written account of the various medicinal products of a natural order respecting which confusion exists in some works on Materia Medica. The author has particularly developed the synonymy, exact botanical origin, and means of distinguishing the different drugs, and has condensed in this pamphlet a store of practical information which will be of considerable use to pharmacists, students, and writers on Materia Medica. Some interesting details are given of amber, which the author considers to be allied to Dammar resin (N.O. Coniferæ) rather than to copal resin (N.O. Leguminosæ), for the following reasons:—(1.) Because it is rich in succinic acid, a body not found in copals. (2.) Because it is not attacked by alcohol. (3.) Because, when heated, it burns like dammar, and does not melt drop by drop like copal.

Étude sur la Valeur Séméiologique de l'Ecthyma. Par P. MUSELIER. Baillière. 1876.

A VERBOSE account of a common affection of the skin, dealing especially with its relations to syphilis, but without adding any material information as to diagnosis or treatment.

The Cottage Hospital: its Origin, Progress, Management, and Work. By HENRY C. BURDETT, Sanitary Commissioner to *The Sanitary Record;* Secretary to the Seaman's Hospital Society (late Dreadnought), Greenwich; late General Superintendent, the Queen's Hospital, Birmingham.

MR. BURDETT informs us in his preface that, it having come to his knowledge that a work on Cottage Hospitals was required, he communicated with Dr. Swete, the well-known writer on this subject, expressing a wish that Dr. Swete would issue a new edition of his work. Dr. Swete being unable to comply with Mr. Burdett's request, he has undertaken the task himself.

Mr. Burdett has spared no pains to collect information and tabulate particulars with regard to 152 Cottage Hospitals. From this information, and Mr. Burdett's personal experience of hospital management, this little work has been constructed. The work scarcely admits of being dealt with by a reviewer in the ordinary way, with the exception of the first chapter, which deals with the history of cottage hospitals and the literature of the subject. The book consists of a statement of carefully arranged facts and elaborate details, which we consider will be found useful to all persons who take an interest in hospital construction and management. We have been unable to discover that anything is omitted which is requisite for a just appreciation of the value and requirements of cottage hospitals. Mr. Burdett, with the aid of Mr. Ernest Turner, architect, has devised a plan for a model pavilion cottage hospital, which, while illustrating all the points put forward by the author as essential to the success of a cottage hospital, affords a valuable model for the construction of such institutions for any places where they may be required.

As Irish journalists we would commend this little work to the consideration of our provincial brethren, and to the rural and small urban sanitary authorities of Ireland, in many of whose districts cottage hospitals are much required, and might easily be provided.

T. W. G.

The Germ Theory applied to the Explanation of the Phenomena of Disease—The Specific Fevers. By T. MACLAGAN, M.D. London: Macmillan & Co. 1876.

WE must apologise to Dr. Maclagan for not sooner noticing this valuable contribution to the literature of the germ theory—a

literature which is now assuming large proportions. The work is dedicated to Professor Tyndall, in recognition (among other things) of the light which his investigations have thrown on the subject. We must say we think, up to the present, Professor Tyndall has used the germ theory more for sensational entertainment than for scientific investigation. Dr. Maclagan investigates the germ theory from rather a novel though not entirely an original point of view. He does not venture upon the discussion of the question of spontaneous generation, but from the point raised by the question—is the germ theory competent to explain the phenomena of the specific fevers?—the author investigates each and every condition met with in the specific fevers, and claims "for the theory advanced in these pages the distinction of being the only one which fulfils this condition. . . . That it should be competent to explain the occurrence of phenomena so numerous, so varied, and sometimes so apparently contradictory, may be regarded as the crowning argument in favour of that theory which attributes these phenomena to the growth and propagation in the system of minute parasitic organisms."

We cannot say that Dr. Maclagan's method of reasoning will bring conviction to every mind, but we are bound to say his arguments are worthy of the logical school of his Alma Mater, justly celebrated for the metaphysical powers of her *alumni*.

A Course of Operative Surgery. By CHRISTOPHER HEATH, F.R.C.S., Surgeon to University College. Part IV. London: J. & A. Churchill.

MR. HEATH'S illustrations of operative surgery have now reached the last number but one. The present contains plates exhibiting several operations upon the upper extremity and the male genitals. We have already recommended this work to the profession.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

President—Thomas Hayden, F.K.Q.C.P.

Secretary—E. H. Bennett, M.D.

Sarcoma of the Fibula.—Dr. Bennett said: This specimen was removed by amputation from a man who was under my care during last summer. He was thirty-seven years of age, and was a small but extremely wiry and able-bodied man. He was originally a navvy, and at the time of his admission was employed on one of the northern railways. It was very hard to fix the exact commencement of his disease, but for about a year he had been suffering from some enlargement in the region of the head of the fibula. Only for about five months before his admission to hospital, however, had he felt any serious anxiety about it. At that time the tumour which you see represented in the cast, as well as in the specimen itself, commenced to grow rapidly. Its rapid growth seems to have been almost the only feature that troubled him. It was almost free from pain, although occasionally it ached. The size of the tumour, and the rapidity with which it enlarged, caused his chief anxiety. There was nothing to note about his general health. As far as I could ascertain, his viscera, thoracic, and abdominal, appeared to be perfectly healthy. He was a clever, rational individual, and of a very determined character. As soon as he was informed that the affection admitted of no treatment short of amputation, he simply bundled up his traps, left the hospital, and returned home to where he lived near Drogheda, saying that he would shortly return. He had to walk from the railway station five or six miles to his home. There he settled his family affairs, and next week he came back to hospital to have the limb removed. The only feature the case presented, beyond what is represented by the cast, was that in the inguinal region there was a gland of suspicious size. One of the glands lying over the saphenic opening was much larger than one would regard as the healthy size of the gland,

but soft and freely movable. The limb, on his first admission to the hospital, was slightly œdematous about the ankle in consequence of some pressure on the veins. On his second admission it was much more œdematous, in consequence of the amount of walking he went through during the interval between his two visits. That condition subsided somewhat, but the cast, as you see, represents the œdema. After a rest of a day or two, however, in bed, the limb fined down very much about the foot and ankle. Over the surface of the tumour sweeping round it and passing into the popliteal space were enlarged veins fully the diameter of a goose-quill, lying in grooves of the tumour, so that you could readily trace their course. We could detect no glandular enlargement in the neighbourhood of the tumour itself. The principal and almost only complaint he made was of the rapid growth of the tumour. On his readmission he complained for the first time of pain from the weight of the tumour. He said that in consequence of his five miles' walk he felt the weight of the tumour more trying than before. The limb was removed by the ordinary flap amputation. There is nothing to mention respecting the details of the operation, except that where these bosses of the tumour project against the surrounding skin it was slightly discoloured, principally at the highest part of it, and it was therefore necessary to keep entirely free of the tumour, in order to avoid retaining any portion of the diseased skin in the flaps. On dissecting the soft parts of the tumour we found that its most prominent points were making way against the skin, but yet in such a way that the skin could everywhere be dissected off it without opening the tumour. It is a lobulated tumour, and has not altered since its removal through lying in spirits. You can distinctly see the lobes corresponding to the elevations and depressions of the cast. On dissecting off the soft parts we find that where the tumour pressed against the muscles of the calf it at first spread them out and then caused their absorption, and then the fibres of the muscles underwent fatty degeneration, the result of the disease and the pressure. The fibres are lost as they pass into the tumour, and all the muscles in contact with it are more or less destroyed. The perineal nerve passes into a distinct groove over the surface of the tumour, and is easily traceable to the front of the leg, but although it is displaced in this way it does not appear to be distended or stretched. The tumour can be seen to be of a reddish, dull-maroon colour, which appears through the tissue of the fascia—the colour of the whole surface is a mixture of dull maroon and deep brown mixed with the glistening gray colour of the fascia. On completing the dissection round the tumour we came on a point which I had not been informed of before the removal—namely, that round the lower edge of it there are two or three small but distinct lymphatic glands; and, again, as we pass up to the popliteal space, we find in that space, and bedded in fat, the ordinary lymphatics larger and more pro-

minent than they should be. On cutting one of these glands through we find in it two distinct sets of tissues—namely, the brown gland tissue and a pale whitish structure. The tumour cuts extremely fleshy, and its physical characteristics are properly described by the term "sarcomatous." A microscopic examination of the tissue showed it to be true sarcoma. There is a point in the centre of the area which presents a strong contrast to the outer part, for it is distinctly fatty and yellowish, as if infiltrated by a bright yellow fat; that part is now altered by keeping, in colour at least. Tracing the fibula with which the tumour is primarily connected upwards, we find that its structure expands into a firm bracket and spreads out around the lower limit of tumour, which appears to have grown from the medullary substance of the head of the fibula. In the centre and upper part of the tumour there is no trace of bone whatever. The only other point worthy of note is the condition of the tibio-fibular articulation. Dividing the tumour towards the joint we find that the articular cartilage is healthy, and there does not exist on the fibular side of it any trace of bone. The cartilage of the joint to the touch and eye presents a sharp, well-defined edge, completely unaltered by absorption or softening. This immunity of the joint is very remarkable; I have not sufficient experience of these tumours to know if it is often repeated. The microscopic examination of the tumour proves it to be of that description which Paget calls myeloid. It is a giant-celled sarcoma, in which the giant cells occur in great abundance and of great size. A point of interest in the tumour is the condition of the lymphatic glands. In their recent state these glands appeared to the naked eye to be somewhat œdematous. There is not in these glands, as far as I have been able to discover, a single trace of the original tissue of the tumour. All this white material is nothing but the cells of lymph. If my examination of these glands be correct, the enlargement of them is simply a sort of hypertrophy, or extreme distension of them with their normal cells. We have probably removed the whole of the glands in the neighbourhood of the tumour. The history of the gland in the groin bears out the conclusion arrived at by microscopic examination. After the amputation the man passed through the course of recovery with great rapidity, and was out of bed on the ninth day, the wound uniting by primary union under antiseptic treatment. There was no elevation of temperature beyond a degree after the operation, no inflammatory action, and practically no suppuration. During this time the gland in the groin had subsided very materially, losing at least a third of its size. It is too soon yet to form any opinion as to whether it is likely that the disease will return or not; but as far as we are able to see up to the present there is no trace of any return of the disease. We know that it is not the habit of sarcomatous tumours to infect the lymphatic glands—at least it is not their mode of spreading by preference.—*January* 27, 1877.

Jaundice.—Dr. Finny said: These deeply coloured and stained specimens were taken from the body of a man who died of jaundice. He was a gardener, seventy-six years of age, and was admitted into the City of Dublin Hospital, under my care, on the 1st of last August. He belonged to a healthy family, and had always been healthy until three months before he sought admission, when he noticed, in addition to a dyspeptic swelling of the stomach, to which he had always been subject from the time he was a young man, that whenever he lay on his left side he experienced a severe pain in the right side extending into the epigastrium. This pain would shortly become so excruciating that he could not bear it, and he had to turn over and lie on his right side. A month later—that is, two months before his admission to hospital—he felt a pain in the region of the liver corresponding to the seventh and eighth ribs in the right mammary line, and at the same time he complained of a bitter taste, and jaundice in the usual form became pronounced. The pain soon afterwards left, and did not return. During the first month and a half after his admission to the hospital, the only pain of which he complained was in the epigastrium, an inch below the ensiform cartilage. "It was," he said, "like as if a burning coal was inside of him," and it was always worse after much handling, or on his lying on the left side. The ordinary physical examination was not accompanied with pain, but whenever he lay on his left side for any time the pain became aggravated, and shot up to the right mammary line. At the time of his admission the hepatic dulness was irregular in outline, chiefly to the right of the round ligament, and extended some distance into the epigastrium, and reached to within an inch of the right side of the navel. The point near the umbilicus, to which the dulness extended, exceeded by an inch the lower edge of the liver, which could be distinctly felt. The surface of the organ was at that time smooth, non-nodulated, and painless, except over the usual seat of pain already described. The spleen was very slightly enlarged. No varicose veins existed in the abdomen, nor was there any ascites, although the abdomen presented an unusual fulness and prominence over the epigastrium. Jaundice was well pronounced, and was accompanied by the usual symptoms; but there were in addition two symptoms which showed the malignant nature of the disease—one was the patient's great debility, and the other the slate-blue colour which existed over the malar bones and the backs of his hands. A diagnosis was made of obstructive jaundice, and most probably due to non-inflammatory obstruction of the common biliary duct. This diagnosis was based on the very deep discoloration of the skin, the presence of bile acids in the urine, the normal temperature, and the physical signs of uniform enlargement of the liver, with distension of the gall-bladder, the absence of enlargement of the spleen, and the absence of ascites. As there was no other intestinal disturbance than is usually attendant on

want of bile in the secretions of the bowels, nor any diarrhœa adiposa, the further diagnosis was that there was no malignant disease in either the pyloric end of the stomach or the pancreas. In the further progress of the case the hepatic dulness changed its shape, and the enlargement at the right side in the region of the gall-bladder disappeared, and in place of it there ensued a stony hardness of a nodular character, which could be felt in the epigastrium, and corresponded more to the middle line and the situation of the ligamentum teres. This change took place towards the middle of September. Towards the end of September some new symptoms set in. Pain was complained of in the lower region of the abdomen on the right side extending into the right iliac fossa. This always increased when the patient moved or coughed. There was also ascites to a small extent, and the superficial veins became distended. After a time, and towards the end of the case, there supervened dropsy of the right leg and of the scrotum; but still, except when the patient lay on the left side or coughed, he was notably free from all pain, and the amount of narcotics that he had to use was extremely small—five grains of chloral hydrate with five minims of Battley's sedative being sufficient to produce eight hours' good sleep. His debility, however, rapidly increased, and he soon began to refuse nourishment. A bed-sore appeared on the right trochanter, and on the 16th of October he died. A few days before death dulness on the right side above the nipple was noticed, and hydrothorax was diagnosed from the absence of all symptoms and signs of pleurisy or pneumonia. On a *post mortem* examination the epigastrium was found to be more prominent than any other part. There was deep discoloration of the whole body, and great emaciation. On opening the peritoneum a quantity of deeply tinged and yellowish brown blood exuded. The omentum, stomach, and intestines seemed free from disease, but the whole parietal layer of the peritoneum was studded over with nodules about the form and size of a split pea or an ordinary nut. These are still seen to be deeply coloured with the yellow of jaundice, but they have to some extent lost the remarkable contrast to the vascularity and deep yellow of the surrounding peritoneum which they presented when first seen. These nodules are quite firm, hard, and fibrous to the feel, and are also fibrous on section, exuding no juice, but a few of the larger ones are of the consistency of large soft yellow masses, to all appearances like painters' size, that you see here, and which was taken from the neighbourhood of the aorta below the pancreas. The greatest number of these nodules were on the right side corresponding to the seat of the pain of which he complained, and especially on the surface of the diaphragm in contact with the liver. They there extend down to the region of the round ligament, and down along the part of the peritoneum corresponding to the linea alba. The round ligament and part of the falciform ligament

are completely converted into this hard nodular condition, and it was this mass which was recognised during life. On examining the stomach we found that, although tucked up under the liver, it is perfectly free from all disease as far as the interior is concerned. The pylorus and duodenum are likewise perfectly free, as are also the pancreas and pancreatic duct. The disease was chiefly behind all these parts, and lay where the splenic vein joins the vena portæ above the aorta. The inferior vena cava has also escaped enlargement. A very large mass, the size of an orange, with several smaller nodules around it, we found in this situation, of yellow, soft, creamy consistency, resembling size more than anything else. The spleen is healthy, and very slightly increased in bulk; the kidneys also are healthy. The pericardium and heart are perfectly free from all disease; the left pleura seems tolerably so, but throughout the right there are a number of these nodules seen, particularly over the diaphragm, containing the same soft, yellow matter; the lower portion of the lung was collapsed, while about half of the cavity was full of a clear fluid. There was no lymph or pus visible anywhere. The liver, to which we again turn, was uniformly enlarged, and the place of the gall-bladder is occupied by a hard mass of some kind of nodular tissue, containing soft yellow matter in the centre of it. The edge of the liver is puckered also in this situation. On making a section we found the cause of the enlargement and the jaundice to be a very great distension of the biliary ducts. I never saw such an enlargement of them before. I can pass my finger through one of them, and have, as you see, passed a large catheter from the edge of the left lobe through the biliary duct into the left hepatic duct. The biliary ducts are not only enlarged, but quite free until near the common duct, which is stopped and plugged by this malignant growth. For part of the way the duct is turned into a hard mass. The gall-bladder has given place to soft yellow matter, the same as we had in other parts of the tumour behind the liver. Hence the disease had not extended down the common duct for the last two inches, or in any way into the pancreatic region, but is confined to the upper portion of the common duct. It thus stopped the bile, and extended into the gall-bladder. The course I imagine the disease took was that at the commencement in June last the patient was suffering from cancerous enlargement of the glands in front of the abdominal aorta, pushing forwards the stomach and left lobe of liver. The disease extended above the pancreas, behind the stomach, and, reaching the common duct, occluded it, not by pressure, but by filling up the duct with the same malignant material. This induced the jaundice for which the patient sought relief, and it being of an obstructive kind, we find the enlargement of the gall-bladder followed in time by its destruction, and the uniform enlargement of the liver without any enlargement of the spleen. Of course it is supposition, but I

presume the further progress of the case was as follows:—That in the beginning of September cancerous peritonitis set in, and that either by direct absorption of the cancerous matter by the peritoneum, or by the escape of cancerous matter from some of those nodules, and by its falling down to the right side (on which the patient constantly lay), "daughter nodules" of Virchow occurred in that region; that when the affection extended up under the diaphragm, and by its extension above and round the falciform ligament, it reached the liver, produced the obliteration of the gall-bladder, converting it into a hardened mass. You see that the whole surface of the left lobe of the liver is turned into small nodules, hard and firm, while the whole peritoneal surface of the organ is studded with the same. As to the exact nature of this matter, which I have no doubt is malignant, I have not yet been able to satisfy myself, but Dr. Reuben Harvey has most kindly sent the following opinion as to its nature:—The morbid growth is a good example of carcinoma of the large-celled variety. With the exception of the small hard tubercles, there is very little stroma to be detected anywhere, the larger soft masses being almost destitute of any but the carcinomatous cells. Dr. Harvey is of opinion that the disease commenced in the gall-bladder.—*January* 27, 1877.

Specimen of Hypospadias.—Mr. F. T. Porter exhibited a specimen of hypospadias, which had been removed from the body of a male subject, aged about forty-five years, in the dissecting-room of the Ledwich School. In most cases of hypospadias there is a want of closure of the inferior wall of the urethra; in this case the inferior wall was closed, but the orifice, instead of being in its natural position, was situated an inch behind the glans, presenting the appearance of a small pin-hole, there being an imperforate dimple, as it were, where the orifice ought to be normally situated. Hypospadias does not possess much surgical interest, but it is often of importance, in a medico-legal point of view, in connexion with divorce cases. For medico-legal purposes it may be classified under two heads:—1st. Cases in which impregnation alone is interfered with; 2nd. Cases in which intromission is absolutely impossible. Anatomically it comes under three heads:—1st. Cases in which the urethra is merely shortened; 2nd. Cases in which the sides of the inferior wall do not meet; 3rd. Cases in which the sides do meet, but in which the orifice is abnormally situated. There were other appearances about the subject generally which I noted. The heart was flabby and enlarged; the lungs presented the appearance of chronic pneumonia; the liver was enlarged; both testicles indurated, their proper substance being converted into a cheesy mass internally; the dura mater was so adherent as to cause the roof of each orbit to give way when the brain was being removed. It is to be regretted that writers on deformities have devoted

so little attention to these interesting malformations, the subject being but lightly, if at all, noticed in works professing to treat of all deformities and malformations which the human frame may be afflicted with.—*February* 3, 1877.

Mediastinal Cancer.—Dr. Hayden said: I have the honour of bringing under the notice of the Society an example of mediastinal cancer of very considerable interest with regard to diagnosis. The patient was a railway labourer of very large stature, and was brought to my house by an officer of the company on the 12th of this month. The history given to me on that occasion was, that the man had been in excellent health for the last twenty-four years, during which he had been in the service of the company; that he was a man of very active and temperate habits; that in the early part of October he suddenly became weak and unable to do his duty. The man himself told me that on one occasion, while lifting a weight, he felt a sudden pain in the back. From that time he lost his usual vigour, and continued to complain of obscure pain in the back, lost his appetite, and was obliged to lie down for the greater part of the day. His services were deemed of such value to the company that they desired to have my opinion as to the nature of his illness, and everything that was possible done for him. A cursory examination enabled me to conclude that the man was suffering from very serious disease, but then and there I was unable to determine what it was. I had him admitted into the Mater Misericordiæ Hospital on the following day, and his condition then, as determined by repeated examination, was shortly as follows:—He had lost some flesh, but not to a remarkable degree. He had an appetite, but declared that he could not eat, because he found that, on attempting to swallow, his food was stopped somewhere in the lower part of his chest, and that occasionally even liquids were arrested. Occasionally he was able to force down some solid food by making a great effort. His pulse was rather weak, but not remarkably so; his tongue was foul; he slept pretty well; he was in a state of remarkable despondency and apathy, and was careless as to what was done for him. On several occasions I witnessed his efforts to swallow; he could force down the food by an effort, and pointed to the lower part of the sternum as the point where the bolus was arrested; after several seconds it would be gulped down and swallowed. He latterly became subject to a cough of a rather teasing character, with very slight expectoration, which was once or twice tinged with blood. He had no jaundice, and his bowels were pretty regular. He lived entirely upon liquids, but on two or three occasions he was able to swallow bread soaked in milk and beef-tea. Improvement was, however, only very brief; next day all these favourable symptoms disappeared, and he was again unable to swallow. His physical condition was shortly as

follows:—There was a remarkable prominence of the upper half of the sternum; this was comparatively dull, but not absolutely so, and in this situation respiration was rather tracheal. Above the left clavicle there were two enlarged lymphatic glands, as hard as marbles, smooth on the surface, and not tender on pressure. There was nothing of a similar kind to be detected anywhere else. There was a very slight engorgement of the superficial veins on the left side of the thorax; the action of the heart was weak, but otherwise normal; the pulse was equal on the two sides, but there was a very decided contraction of the left pupil. The history of his illness, including the occurrence of sudden pain in the back while making a physical effort, the contraction of the left pupil, the difficulty of swallowing, and the appearance of blood in the spittle, led me to suspect latent thoracic aneurism. However, a careful survey of all the symptoms, and observation of the man from day to day, soon led me to conclude that it was a case of cancer of the mediastinum. The grounds upon which that conclusion was based were the following:—In the first place, the existence of enlarged lymphatic glands above the left clavicle, not strumous, smooth on the surface, hard, and not remarkably large; secondly, the prominence of the sternum, with tracheal respiration, and without inpulse, and without any very decided change in the character of the heart sounds. The remarkable apathy and carelessness of the man about his condition, the absence of decided pain, and the vague character of the pain in the back, the failure of nutrition, and the gradual loss of flesh—all these symptoms, I say, led to a conclusion which seemed to me inevitable—namely, that the disease was intra-thoracic cancer. The man sunk perceptibly from day to day; his strength gradually failed; and on the 31st of this month he died. His respiration, I should remark, was unaltered throughout his illness, and was distinct all over the two sides of the chest. The pleural cavities contained each about a quart of blood-stained serum; the pericardium contained eight ounces of a similar liquid; the liver is remarkably large, rather pale, but otherwise unaltered; the pancreas is in a state of scirrhous induration, but the other abdominal organs were structurally unaltered; the spleen and kidneys were large and hyperæmic; both lungs were very large, and their surface was studded over with disseminated cancerous nodules—this is best seen on the internal surface where the lungs are in contact with the pericardium. There is a large mass, of scirrhous hardness, on the superior and internal portion of the right lung. The nodules are dispersed over the surface of the left lung, and are presented here in a very distinct form. These deposits present very much the appearance of particles of fine mortar or paste attached to the surface of the lung, and are characters very different from disseminated tubercles. There was no surrounding inflammation, and no adhesion of the pleura anywhere, showing the aplastic character of those deposits. There is no deposit in the interior of the lungs, the

surface alone being engaged. The heart is not much altered, but there is a considerable deposit of fat on the surface. The anterior mediastinum presents a scirrhous mass quite as large as a melon; it followed the course of the aorta, the trachea, the œsophagus, and descended into the posterior mediastinum, where it completely surrounded the œsophagus. The lower portion of the œsophagus, at a point a little above where it passes through the diaphragm, is reduced in calibre to about the size of a goose quill, and this was the point of obstruction. Below this the gullet is of ordinary diameter. The œsophagus, from the upper part of the mediastinum to the diaphragm, was ensheathed in this cancerous mass, and this, at the point I have mentioned, had so constricted the tube as to render it not larger than a goose-quill. The case is of very great interest as regards diagnosis. Many years ago, when I had the honour of being a pupil of my venerated and esteemed friend, Dr. Stokes, he delivered a lecture in the theatre of the Meath Hospital on the diagnosis of thoracic aneurism as distinguished from cancer, and I have never since forgotten the emphasis he laid on the fact that, in cancer, men exhibited apathy and failure of nutrition which were never witnessed in aneurism. I have had many opportunities since of confirming the truth of those observations, which is forcibly illustrated in the case before you. In the next place, the occurrence of those cancerous nodules above the clavicle served materially to assist the diagnosis; but even in the absence of these I should have had no difficulty, ultimately at least, in coming to a positive conclusion as to the nature of this man's disease. The microscopic characteristics of the tumour were those of scirrhous carcinoma—viz., fibrous alveoli containing multitudes of cells of various forms and sizes, the greater number being round, and about 1,600 of an inch in diameter.—*February* 3, 1877.

Fracture of the Spine with Blood Extravasation.—Dr. Bennett said: This is the spine of a patient who was killed by a fall last summer. He was a man of about twenty-nine years of age, healthy, and without any constitutional feature to require attention. He was a mason, and was at work on a scaffold some fourteen feet high. When his fellow-workmen went to dinner he remained behind by himself, and some beam or support slipping under him he fell the height of the scaffold to the ground. He remained a considerable time unconscious without any assistance, and was of course entirely ignorant of the details of his fall. I mention this because it is a point of importance in reference to the practical bearings of the case. On his admission to the hospital he presented the ordinary features of fracture of the spine. He had paralysis of the lower limbs, and of the abdominal muscles, and of the lower intercostal muscles, and a considerable degree of paralysis of the muscles of the arm; sensibility was also impaired from the level of the infra-clavicular

region to the toes. There was some slight degree of sensibility on the left side in one or two spots, but during the first day, at all events, little or no sign of feeling could be detected. The bowels were confined, and there was a retention of urine with priapism. The usual train of phenomena of the ordinary type in the case of fracture of the spine in the lower cervical and upper dorsal region ensued. On the day but one after the injury, as soon as the effects of the shock had passed away, a return of sensibility occurred in the left lower limbs and part of the right, and on passing up over the abdomen parts of the abdominal region about the umbilicus and the upper part of the hypogastrium evinced sensibility, and then we came to a second area of anæsthesia. The loss of power in the upper extremities had almost disappeared, and was replaced by more or less of neuralgic pain. The priapism and retention of urine continued as in the ordinary cases. There was during the entire time a complete abolition of the power of motion in the lower limbs, and reflex movements could not be induced. An examination of the back revealed very little indeed as to the seat of the injury. We found no irregularity whatever in the dorsal region. On placing the man sitting up, he was in such a profound state of motor-paralysis, his body bending over in the most convex part of the back, some idea of the existence of irregularity in the mid-dorsal region was suggested. I could not find sufficient evidence, however, to enable me to localise any lesion in the dorsal region. When we examined the last cervical and first dorsal vertebræ, it was just possible to detect some sinking of the spinous processes of that region; but the sudden change from shortness to length is such, in this position, that it was impossible to decide whether we were dealing with the natural conformation of his neck, or with a real depression. During the first week sensibility returned in a great measure on the left side, and as low down as the calf of the leg, while at the right of the umbilicus an area of clear sensibility returned, and the neuralgic pains of the arm disappeared. Having examined the case from day to day the conclusion to which I came was that we were dealing with a fracture of the spine in the lower dorsal region, and blood effusion in the upper dorsal and lower cervical. I was led to this from the facts of the profound motor paralysis in the lower extremities, the persistent priapism, and the paralysis of the bladder and rectum; and as soon as we passed up to the point supplied by the upper six dorsal nerves we passed into a region where sensibility was suddenly restored, and where, as far as we could detect, some amount of motion existed—that is, the more marked symptoms which we would expect to be due to fracture of the spine were developed from the middle dorsal region down, while from the cervical to the mid-dorsal region we had the symptoms improving *de die in diem* for nearly a fortnight. First there was the loss of sensibility, then the development of neuralgic pains in the upper extremities, and,

finally, the complete restoration of sensation in the upper extremities, such as we could fairly attribute to effusion of blood, which effusion was undergoing rapid absorption. This case was protracted somewhat longer than the general run of such cases. The man lived for very nearly two months, and he died with the ordinary phenomena that attend a fatal issue in such cases. The bladder required the catheter constantly, and, towards the end of the case, overflowed without the catheter. The bowels were constantly obstructed; he became rapidly emaciated, and bed-sores formed on the nates. Further, there was evidence of abscesses forming round the kidneys; in fact, the inflammation of the bladder, which was the result of the retention of urine, extended upwards to the kidneys and developed perinephritic abscesses; and with these, and the bed-sores, and the suppurating kidneys, he died. We made the examination, as you see, pretty completely, removing the spine from the second cervical vertebra down to one of the lower lumbar vertebræ. The first thing to be noticed is the apparent lesion of bone at the level of the sixth and seventh cervical vertebræ. Part of the bodies of the sixth and seventh vertebræ project backwards into the spinal canal, and again above this you see that the ligamenta subflava are ruptured, and when we look to the posterior region it is clear that the spine has been damaged by its extreme flexion forwards at this point. On looking closely at the specimen it is possible to see that there has been a fracture of these two vertebræ, detaching a wedge-shaped piece, the base of which wedge projects backwards against the spinal cord. Consolidation, which has resulted rapidly in consequence of the crushing of the cancellated tissue, has in part obliterated the lines of fracture, but still we can trace them by careful examination. The body of the sixth cervical overlaps the seventh in front for a considerable distance, and has been united to it. A wedge-shaped piece is detached from the body of the seventh vertebra, while the whole seventh itself is twisted a little back. These two vertebræ press on the spinal canal and narrow it. The spinal cord is here pinched, and is a good deal damaged, but still is not the subject of extensive softening, although there is enough of softening to detect it by the finger just at the point of highest projection of the bone. As to the diagnosis, that which I first made, and maintained all through to the very end, completely reversed the position of the lesions. I had supposed that we were dealing with a fracture of the spine low down and with some of the lesions of the cord which are capable of recovery in the lower cervical region. As we open the canal further down we come to an interesting series of pathological changes demonstrating the cause of the second set of symptoms. This man lived nearly two months after the injury, and during part of that time he was in very fair nutrition. The whole of the cauda equina is occupied with a dense clot of blood. The fibres are glued together with this thick dense clot,

and at the posterior aspect of the cord we have again a firm clot passing out from amongst the fibres; and considering that these coagula are what remain after two months' absorption, the original clots must have been sufficiently large. Again, at the outside of the canal, as you see from the colour of the membranes, the whole tissues are deeply distended with blood. On the outside of the theca vertebralis, also, we have a great coagulum. The condition of affairs that the pathological investigation reveals is exactly the reverse of our diagnosis, as far as the position of the two lesions is concerned. We diagnosed a fracture, probably attended with crushing of the vertebral bodies, in the middle dorsal region. We assumed this variety of injury, as being commonly the case where no irregularity of the spines has occurred. We also assumed that extravasaion of blood had occurred and produced a second cause of compression of the cord higher up, and that it was being rapidly recovered from. Instead of that we have the prime lesion situated above and the recoverable lesion situated below. This is a case which, above all others, might have been deemed suitable for operation if the seat of lesion could be made out, because the anæsthesia of the lower extremities was not complete, but sensibility was recovered to a large extent, and, consequently, we had evidence that the spinal cord, although damaged, was not hopelessly injured, and that it was not divided. It is a case in which one would have been justified, according to many authorities, in undertaking the operation of trephining the spine for the purpose of removing the pressure. But the difficulty which occurred in that view was that we could not diagnose with certainty the seat of the lesion. This arose first from the want of any exact history of the way in which the accident occurred, the man having only been found lying insensible and brought into the hospital. Somebody saw him fall off the scaffolding, but was not near enough to give an account of how he reached the ground; whether he fell on his head or his legs, or was bent forwards or backwards we could not determine. Again, the seat of the lesion was at that most perplexing part of the spine where the sudden transition from short spinous processes to prominent ones occurs, and where it is extremely difficult to appreciate the depression caused by fracture. Again, there was the fact that the phenomena produced by the compression of the cord at this point were not as constant or as severe as those lower down.—*February* 3, 1877.

Tubercular Meningitis.—Dr. Finny said: This specimen was taken on Thursday last from the body of a little girl, aged eight years, who was admitted into the City of Dublin Hospital on the 26th of last month. She was a sallow, unhealthy-looking child, and seemed to have been badly fed and nourished. Her father had been, according to her mother's account, a drunkard for the last twenty years; so that it may be

presumed the child was not very well taken care of. During the last month her mother noticed that she was feverish, irritable, and constantly picking her nose. Ten days after the appearance of those symptoms intense headache was complained of, which was confined to the forehead; there was also nausea, but she vomited only on two occasions. On her admission her temperature was 100°, her pulse ranged from 110 to 120; she was peevish and irritable, and nothing that she attempted to take would stay on her stomach. Consequently it became necessary to keep up her strength by enemata. She lay usually on her back, with her legs flexed, one hand on the genitals, and the other somewhere on her face or picking her nose—a position which West has called attention to in tubercular meningitis of children. On attempting to turn her round to examine her she would utter a scream, and turn herself back, averting her face. Her eyes were constantly rolling about, and the pupils were usually dilated, though not irregularly so; they responded to the light. She seemed to suffer from photophobia. Her bowels were obstinately constipated, and when they were moved by medicine the discharges were offensive and black. The belly presented the peculiar appearance described by Gölis, being boat-shaped, and retracted strongly towards the spine. In this condition she remained for some three or four days. Before her death there seemed to be a remission of all the symptoms, but this was soon followed by an exacerbation of them. During the interval of the remission she took food, and was able to speak and answer questions intelligibly; but after some days she relapsed into the same condition as before. Her pulse had now changed its character, and rose to between 140 and 160, while her respiration had assumed that slowness and want of rhythm which has been regarded as one of the surest signs of tubercular meningitis. At a time when her pulse was 145, her respiration was only 20 in a minute, being sometimes so shallow that you could not say whether she was breathing or not, while at other times it was sighing and loud. The way in which she wasted was remarkable. She got daily thinner, particularly in the body and extremities, rather than in the face. She died without paralysis or convulsions. On opening the calvarium the arachnoid over the hemispheres was seemingly healthy, except for some congestion on the surface, but there was none of that yellowish or greenish lymph which is so commonly seen in cases of simple meningitis. The surface of the brain is rather large, owing to distension from internal effusion. On removing the arachnoid the grey matter of the brain was found to be considerably engorged, being red and soft. On tearing off the pia mater, miliary tubercles were seen in great numbers on the borders of the grey matter. On the edges of it small granular bodies could be seen. On slicing the brain down to the level of the lateral ventricles the third ventricle was found to be very widely dilated. There was very little softening of the

septum between the anterior cornua of the lateral ventricles, but the walls of the lateral ventricles were widely separated from one another, and the foramen of Munro was very distinct. The processes of the pia mater, velum interpositum and choroid plexus, are, as you see, generally disorganised and full of bodies apparently of a tubercular nature. The greatest amount of lymphy matter seems, as far as we have dissected, to be in the processes of the pia mater, and, although the specimen has been two or three days in chloral hydrate solution, you see that there is a great deal of yellow lymph in those processes, chiefly at the base. Tubercles can also be seen on opening most of the sulci, and drawing the pia mater from them. They follow the upper surface of the cerebellum, chiefly on the right side. On examining the brain underneath we found, as I expected, a great deal more of this inflammation. The entire of the inter-peduncular space is filled with lymph, so that the corpora pisiformia are not visible, and the infundibulum passes down through a mass of lymph. The same lymph follows the arteries of the circle of Willis, and chiefly into the Sylvian fissure; the brain was softened in the neighbourhood of all these parts. Continuing our examination of the fourth ventricle, we found, as we expected, that it is generally disorganised, and that the pia mater in some places is greatly thickened, and contains the same tubercular deposit. The case is an example of a disease for which unfortunately, I believe, we know no cure, and is therefore not interesting in a clinical aspect. Yet there are some points to which I shall call your attention—one is, the diversity of symptoms which tubercular meningitis is known to present. On the 26th of January, 1876, I submitted to this Society a case of tubercular meningitis, in which, although the tubercular disease extended through the patient's whole body, and the case ran a very rapid course, the symptoms at first had all the appearance of those of enteric fever. I can give no opinion why it was that in that case we had the evidence of a fever which, in twenty-one days, consumed the patient, with but very small deposits through the brain and other parts of the body; while in this we found such an advanced condition of dilatation, and lymphy exudation round the origin of the nerves from the medulla oblongata, with very little symptom of fever. In the case I showed on the former occasion we had no vomiting; a great deal of delirium and headache, and death in three weeks. In the present case, which lasted over four and a-half weeks, a great deal more pathological change has taken place, and yet the symptoms were not very severe or rapid, being more those of a wasting away with unconsciousness.—*February* 10, 1877.

Hygroma of the Wrist.—Dr. Bennett said: This cast represents the condition of the hand of a young man, of between twenty-four and twenty-five years of age, who was admitted, under my care, last summer

into Sir Patrick Dun's Hospital. These two glasses before you contain parts of the contents of the tumours which the cast depicts. The hand presents, on the dorsal aspect, a large tumour, extending both above, below, and underneath the posterior annular ligament. Again, over the centre of the knuckle there is a similar tumour. On the anterior aspect a tumour is sufficiently characteristic to be recognised at a glance as a tumour formed by a collection of fluid in the bursa beneath the anterior annular ligament—Dupuytren's bursal tumour. Again, on the thumb, the index finger, and the centre finger, similar tumours occur. The circumstances of such a number of these tumours being confined to the one extremity—for there were none of them on the other hand, or on either of his feet—and the age of the patient, make the case one of considerable interest. An examination of the tumours proved, at once, that they were instances of cystic accumulations in the synovial sheaths of the tendons; and with one exception they are not ganglia, but hygromata of the sheaths of the tendons. This Dupuytren's bursa on the anterior aspect of the limb had existed for seven years—that is, it dated from the patient's boyhood. The next, in age, is the tumour on the dorsal aspect, which dated from two and a half years before admission; and its appearance was rapidly followed by that of the tumours in the thumb and remaining fingers. All these tumours presented the phenomenon of crepitation, which is characteristic of the tumour of the anterior annular ligament. They were, likewise, all distinguishable from true ganglia; and, on opening the small tumour, which appeared most ganglion-like, for the purpose of treatment, it was found to contain the characteristic bodies which distinguish hygromata. Taken by themselves, the tumours are not of very much interest; and the points of importance are, I think, the great number of the tumours, their order of appearance, and the age of the patient at which the first tumour appeared. There was no history of injury or of rheumatism in any possible form. The young man was a power-loom weaver, extremely intelligent, and a foreman of the works in which he was employed, and was, consequently, extremely anxious about the increasing loss of power in his hand. He had been entirely unable to use it during the last three weeks previous to his admission, and he urged, in consequence, most strongly, the application of active treatment. You are well aware of the objection that has been entertained in this city, for many years, against interference with these tumours. The teaching of many distinguished surgeons, who are now dead, was, certainly, against interference in any form with these bursæ, and I myself had never before had the courage to undertake treatment of an active nature on any of them. Pressed, however, by this young man, and seeing that his hand was absolutely useless, and would certainly not improve if left to itself, I cautiously commenced treatment. In doing so, I thought it well first to experiment,

so to speak, on the less important tumour of the dorsal aspect. I punctured it first with a fine needle. It crepitated freely. We drew off the fluid, but the bodies remained. The fluid afterwards rapidly re-accumulated. In a few days I introduced a trochar of about the bore of a No. 4 catheter, and by means of it easily removed the bodies which you see, and which have the characteristic conformation of rice grains or melon seed. The whole of the bodies were expressed from the dorsal tumour. They are large and few in number compared with the size of the tumour. We injected the tumour with tincture of iodine, and it behaved kindly, and subsided, but left some indurations about the walls, which became adherent. Encouraged by this and the complete absence of any disturbance, and taking some precautions by introducing a trocar of pretty large size under the guard of an antiseptic spray, we drew from another of the tumours a much greater quantity of fluid, which was more thickly beset with bodies more numerous and smaller than those which had come from the first tumour. We expressed as many of them as we could from the tumour, and then injected it with a strong tincture of iodine, and allowed as many of the remaining bodies as would come away without much pressure to escape afterwards. We then placed the limb in an ordinary splint and allowed it to rest for some days. No reaction followed, and very speedily the tumours assumed an almost semi-solid condition. They diminished in size, and presented little sign of fluctuation, and there was nothing left, apparently, but the circumscribed inflammatory thickening. The man was extremely anxious to return to the country, his position as foreman having been kept open for him. I placed round his wrist an elastic mitten, made of the strongest India-rubber webbing. He went away, and about two months afterwards he wrote to me stating that his hand had improved considerably, and that in about another month he would return to town and let me see it. In October he came to town, and I was very much struck with the altered condition of his hand. All trace of the tumour on the back of his wrist had disappeared. The tumour on the palmar aspect, extending under the annular ligament, had still some thickening, but nothing of any importance. More remarkable still was the fact that the three tumours of large size on the fingers, which did not in any way communicate with the larger tumours on the wrist, had all disappeared, so far as fluid or crepitation was concerned, although no injection had been made into them. There was some slight thickening of course, but no crepitation or fluctuation. The case is an extremely rare one, and it affords an example of the possibility of interfering with such tumours with safety. Anyone who reads Mr. Adams' remarks on the subject will, I think, agree with me that the greater number of these bursal tumours of the wrists are met with as complications or accidents of rheumatic arthritis of the wrist, and are commonly associated with a rheumatic aspect of the hand. There is

no doubt whatever that interference with the rheumatic form of these tumours has been followed, on many occasions, by extremely disastrous results. I fancy the safer course would be to avoid active treatment in rheumatic cases; but in a case which was so clearly separated as this was from rheumatic affection, we were warranted in interfering. The extent, size, and number of the tumours in this case was sufficient to justify the course we took. With respect to the seed-like bodies, they have been often described, and are familiar to every pathologist. It is only to be remarked that in this case the larger they were the fewer were the numbers collected in the tumour, and the smaller the more numerous they were; and when they are small in size there is very little fluid about them.—*February* 10, 1877.

Uterine Hæmorrhage.—Dr. Atthill said: This specimen is fortunately one of rare occurrence. It is the uterus of a woman who died of *post partum* hæmorrhage—an accident fortunately of rare occurrence. It is further interesting from the fact that a solution of perchloride of iron was injected into the uterus, with the view of checking the hæmorrhage, and that transfusion was finally practised. The woman was admitted into the Rotunda Hospital on Wednesday last. At that time the os had dilated to about the size of a half-crown. She remained in that condition, the pains having ceased for about twenty-four hours, when labour set in, and she was delivered by the natural efforts at four o'clock in the afternoon. I happened to be in the ward as she was being delivered, and there was not at that time anything in the case to attract my attention. Shortly after that some slight hæmorrhage occurred, but not to any great extent, and the ordinary means were adopted. It ceased, and a binder was applied. A trickling of blood, however, continued to flow, and she was seen by Dr. Hart, the assistant physician, who, on removing the binder, found the uterus to be large and to contain some clots, which were expressed; but the oozing of blood, though not copious, continued. I saw her at six o'clock, about two hours after her delivery. She was then exceedingly weak and her pulse very feeble, small, and not easily felt. We at once decided on injecting perchloride of iron, and the result was satisfactory. From that time there was little or no hæmorrhage, but she did not rally. Her pulse improved for a short time, and then failed. Fearing that death was impending, I sent for Dr. Robert M'Donnell, who came at once; and, blood having been supplied by one of the pupils, the operation of transfusion was performed at once by him. The blood flowed in exceedingly easily. After about three ounces had entered the vein, the patient became very restless, had to be held to prevent her from throwing herself about, and complained of great distress, though not amounting to actual pain, in the chest; still the process went on till the whole of the

blood was transfused; and then the arm was closed, and we hoped that after a little time reaction might be established, and that she would improve. However, things went on from bad to worse; the pulse never returned to the wrist; respiration became slower and more jerky; and, finally, she died about ten o'clock, six hours after her delivery, there having been no hæmorrhage for about two hours previously. An autopsy was made next morning by my friend, Dr. Duffey. The womb is before you. This was this woman's eighth confinement. She was well made, and about thirty-seven or thirty-eight years of age; the rigor mortis was well marked; there was a slight vascularity of the peritoneum, and the uterus is large and flabby; there are some clots of blood in it; the walls are bloodless; and the cavity contains a quantity of black coagula. It has been asserted that when perchloride of iron is injected into the uterus it is likely to penetrate into the veins, and so blacken the substance of the muscle; but you see here that there is not the slightest appearance of any such conditions, and these statements do not appear to me to be borne out by the facts of this case.—*February* 10, 1877.

Tumour of the Lower Jaw.—Mr. Tyrrell said: This morning I removed rather more than the left half of the lower jaw of a woman, aged fifty. She came from the county of Roscommon last week, and was placed under my care. I found a great enlargement of the lower jaw, as the specimen shows, and a considerable quantity of fungous-looking mass impinging on the teeth of the upper jaw, very much impeding mastication, and giving rise to great inconvenience, not the least part of which was extreme fœtor. The history of the case was not satisfactory, as, indeed, generally happens in cases of the sort. She stated that six months ago she was perfectly well, but that four months ago she went to a practitioner in the neighbourhood, who removed one of her back teeth. She asserted that at that time she laboured under no inconvenience but toothache. That I do not believe. However, be that as it may, when I looked into her mouth at the time she came in, I saw that her jaw was very much enlarged, the molar teeth nearly altogether gone, and a large fungous mass, part of which is lost, but some of which yet remains in the specimen. It was evidently a case requiring an immediate operation. What the exact microscopic appearances are I do not know; they will be in proper time made out and recorded in the Proceedings of the Society. As she was anxious to have the mass removed, instead of waiting until next Wednesday, I removed it this morning in order to gratify her wishes. In doing so we had to take away the two incisive teeth on the right side, as the disease had passed across the middle line. Then the operation was done in the usual way. On grasping the mass with a lion-forceps, so as to draw the mass forward, a part of it broke away, and you see one of the teeth *in situ*. The operation was not attended

with any considerable difficulty Some of the integuments of the cheek and the mucous membrane have a very suspicious, hard feel. These I also removed with the concurrence of my colleague, Dr. Hayes, and also the sublingual gland on that side, as it had a hard feel. There was no glandular implication beyond the jaw. The case is not a very favourable one; but, if her report be true, it shows the great rapidity of the growth of such formations. Her clinical history was very unfavourable. It also shows that these tumours grow from the periosteum—as this one has done—and not from the bone itself, which is intact. As soon as a tumour of the kind is discovered, no time should be lost in removing it, for if left to itself it will go on from bad to worse; and even in this case, after the interval of six months, the disease may have implicated the system, so that the operation will be only of temporary use. However, I thought that under the circumstances it was my duty to remove it. I shall make a section of the growth for the purpose of examining it. It is excessively hard and fibrous. A portion of it, as you observe, has peeled off, leaving the bone quite bare, and denuded of periosteum. I do not believe that any operation of a less grave character than that which we performed would have been of any service in the case. It was absolutely necessary to remove the bone from the condyle. You see the disease has passed along the front of the coronoid process; and to have taken away less would only have submitted the woman to very great danger without any corresponding advantage. I anticipate that before our proceedings close for the year I shall be in a position to inform you as to the microscopic character of the tumour.—*February* 17, 1877.

Asthma, with Peculiar Enlargement of Liver.—Dr. Finny said: These specimens are taken from a patient who died in the City of Dublin Hospital, under my care last Wednesday night. For the following notes of the case I am indebted to one of my pupils, Mr. Crozier:—The man, who was aged fifty-two, a coal-porter, married, was admitted on the 9th of February. He sought relief from shortness of breathing and cough. He had been unable to sleep or lie down for some days before his admission. The rest of the members of his family were in moderate health. He had never had a day's illness until two years previously, when, in the month of September, he got an attack of bronchitis which left him short-winded. For ten days before his admission into the hospital he had felt very unwell, and one day he fainted in the street. He felt heavy and drowsy, and yet was unable to sleep from dyspnœa; his face was blue about the nose, and the superficial veins were full and tortuous. His cough was worse after sleep, and the amount of sputum was not commensurate with the distress which he experienced. One day after his admission he had a paroxysmal attack of dyspnœa which almost

amounted to asphyxia. The orthopnœa was so distressing that he sat out of bed with his legs hanging over in order to get relief. Under the inhalation of chloroform the spasms somewhat abated, and he was able to lie down and sleep at night. On exposing his chest for examination it was found that his respiration was chiefly diaphragmatic, the movement of the ribs being very slight, and the intercostals being rather indrawn than expelled during inspiration. The supra-clavicular fasciæ were drawn in with inspiration, leaving the sterno-mastoid and the other muscles of the neck standing out. Percussion was clear over the pulmonary region approaching the tympanitic note, while there was dulness over the regions corresponding to the heart and liver, and extending down to the twelfth rib. Upon auscultation musical notes of varying pitch were heard through the lungs, but chiefly towards the base. There was not much interchange of air in the bronchial tubes, and both vesicular murmur and vesicular crepitus were absent. The cardiac sounds were normal; the pulse was weak and compressible, being about 100 in a minute; the abdominal walls were bulged out to the extent of an inch and a half beyond the thoracic, even after expiration; this prominence was most noticed in the epigastric region and in that of the liver. A large tumour, which followed the movements of the diaphragm, both on expiration and inspiration, extended down for some distance in the epigastrium and below the umbilicus. The movement was also slightly transverse, but the motion accompanying the action of the diaphragm was very plain. The patient's hands and feet and the front of his chest became cold on exposure, while his face and trunk were thickly covered with perspiration, large beads of which trickled down his face. Under the administration of ammonia and ether he seemed improved, and on the 11th and 12th passed comparatively easy nights, being able to lie in a recumbent posture and take more nourishment. The dyspnœa, however, increased, and on the 13th he seemed about to die. His heart began to act irregularly, while his pulse was small. It was evident that unless his heart was relieved death by asphyxia or syncope would rapidly ensue. Cups were applied to his chest, but very little blood would come from the veins. I then removed six ounces of blood from his arm, which gave him some relief, as he was then able to take a deep inspiration and lie down instead of sitting up in bed. This relief was, however, only temporary, for the symptoms of asphyxia increased, and he died on the night of the 13th. Upon a *post mortem*, made on the following day, it was found that the lungs were somewhat inflated and emphysematous, and stood forward, the lower part of the right side being filled with a quantity of serous effusion. There was no lymph in the pleura, so that, perhaps, it was hypostatic. Both lungs were deeply congested, and the congestion extended principally posteriorly, so that on cutting into the substance of the lung it presented the appearance of being infiltrated with blood,

which can be squeezed out, and then the crepitant feel of the lung returns. This blood is chiefly venous.

The back and upper parts of the lung and the anterior borders are in a state of emphysema. The apex of the right lung is adherent to the cone of the pleura, and some old adhesions had to be torn through. The lungs are extremely soft and seem to be almost in a state of gangrenous breaking down, so that the finger can be run through them with the greatest ease. The heart is somewhat enlarged, and there is a considerable quantity of fat on its surface; and, on opening the right side, we found a clot, extending from the pulmonary artery down to the right ventricle, through the auriculo-ventricular opening, into the auricle, and terminating in a mass of thrombus in the appendix. This was firmly adherent to the auricle, especially the posterior part of the clot; and some parts of it were extremely white, suggesting the belief that it had formed for some time before his death, while the major portion of the clot had formed during the last two days. There were no valvular lesions of importance connected with the heart; but the wall of the heart presented two facts worthy of note, one being that upon section the ventricular wall near the apex exuded a quantity of black blood from the veins which showed great congestion, and the other that the musculi papillares of the left side were quite yellow and apparently undergoing fatty degeneration. The whole organ is soft and flabby. The points of interest in the case are in connexion partly with the lungs and partly with the abdominal tumour. It is plain that the mode of death was by asphyxia, but I do not quite comprehend how it was brought about. It could not have been the thrombus on the right side of the heart, for there have been many cases of more marked thrombosis without this form of death. That asphyxia was the cause of death is pretty plain from the hypostatic congestion formed in both parts of the lungs and from the various hæmorrhagic spots found in the inside of the stomach and the inky spots found in the pericardium—these inky spots, together with a cinnabar red colour of the trachea, being found in cases of death by asphyxia. On following the pulmonary artery we found no plug for some distance, and the pulmonary veins seemed free. On opening the trachea we found an appearance not familiar to me—namely, longitudinal striæ, reaching from one side, round the opening of the bronchus, to the other. These are greatly hypertrophied muscular tissue and elastic fibres, and underneath there is a transverse marking, exactly like that of a sieve. Possibly this may have had something to do with the mode of death by asphyxia, for the symptoms were not those of the asphyxia of carbonic acid, but of the asphyxia of apnœa. The patient, on the nights of the most serious apnœa—namely, the 12th and 13th—was almost voiceless, as if no air could be taken in and out, and the chest seemed to be in a state of constant spasm. That the diaphragm was not the cause of the spasm was pretty plain,

because it moved with every inspiration. The spasm was in the lungs or their parietes, and it is probable that the spasmodic condition of the hypertrophied looping muscular fibres round the opening of the bronchi might have produced the asphyxia. The hepatic tumour is very remarkable, and contrasts notably with a case of malignant cancer of the liver which I recently brought before the Society. In the latter the jaundice was well marked, and, in fact, all the symptoms pointed to hepatic complication. In the present case there were no symptoms of hepatic complication. The patient complained of nothing in his stomach, nor did he notice the tumour until I called his attention to it, and then for the first time he noticed the fulness in the upper part of his abdomen. There was no jaundice, or ascites, or varicose veins in the abdomen. Therefore it is a good type of disease of the liver which escaped implicating the biliary ducts—as in my former case, in which these were dilated to a size as large as the bronchi—and which exempted the gall bladder, which is perfectly normal. The liver still presents the appearance which it had on opening the abdomen. These large yellow bosses were the tumours which we felt during life; one is the size of an apple, and there are many others of half the size. The disease is chiefly confined to the left lobe of the liver, but is also found in the lobulus Spigelii and various parts of the right lobe. Irrespective of these tumours the liver has, to a great extent, the appearance of what is known as the "hob-nailed" liver, as if cirrhosis had been in operation; and this idea is confirmed by the appearance of the spleen. The liver is enlarged and firm; and a section of it shows the acini and lobules in a very marked way, each being distinct from its neighbour. It is very granular on section, as well as containing new growths. The spleen is in a state of chronic enlargement, and there is considerable hardening of it, so that after making a section the finger can be run along without pulpy matter exuding before it, as is usually the case. The exact structure of this material I am not in a position to state. It cuts white and is extremely hard and firm to the feel, and, on looking closely at it, seems to be mapped out in circular portions, leaving intact the other tissue round it. It does not seem to follow the course of the hepatic artery, or the vena portæ, or the biliary ducts, as it is found in various parts of the liver without any regard to the distribution of those vessels. Most probably it is a further change of the lobules of the liver which were undergoing the first stage of cirrhosis of the organ.—*February* 17, 1877.

Advanced Morbus Coxæ; Excision.—Dr. E. W. Collins said: The specimen I exhibit is the largest fragment I removed recently during the operation of excision of the hip-joint for advanced morbus coxæ. The subject of the disease was a girl, now seven years of age. Her mother stated that about two years ago the child fell down stairs,

striking upon her right hip. This resulted in chronic and progressive inflammation of the joint. Four months ago she was brought to the dispensary connected with Jervis-street Hospital. During the previous fortnight an abscess, which had slowly formed in the vicinity of the joint, had pointed and burst about two inches below the great trochanter, on the outer side of the thigh. The limb was shortened, flexed, adducted, and inverted. Her health was tolerably good. There was no evidence of struma. I took her into the hospital, and kept her under careful treatment for three months, maintaining her health as far as possible, along with perfect rest, free drainage, and extension. Small pieces of bone came away from time to time on the discharge, clearly proving the implication of the osseous structures. The ordinary probe and Sayre's flexible probe—specially invented for such cases—on several occasions failed to light upon diseased bone. This was owing, as was determined during the subsequent operation, to the main sinus leading in front of the capsule into the iliac fossa; while, from this sinus, at one point, another, much smaller, led tortuously backwards and outwards, at right angles, through the capsule into the joint. During the past month hectic fever, cough, diarrhœa, emaciation, inability to eat food, insomnia, set in along with increased suppuration. Her strength markedly failed. Under these circumstances I resolved to remove the source of irritation by excision of such bone as was diseased. The occurrence of erysipelas in the ward obliged me to defer the operation until Tuesday last. From careful investigation of the condition of the viscera I had concluded that the liver and kidneys were not diseased. Slight disease, however, existed in the apex of the left lung. During the operation I first removed all the upper portion of the femur above the lesser trochanter. The head and upper part of the neck had been absorbed. The trochanteric portion of the femur, viewed externally, was apparently sound. Vertical section through the centre, however, reveals evident disease, and a commencing sequestrum extending almost to the level where the bone was sawn. This apparently healthy specimen I exhibit, as it clearly shows the advantage of making the section with the saw, not merely through the neck of the bone, but through the trochanteric portion just above the lesser trochanter, or as far down along the femur as the disease may extend—at all events, below the great trochanter. The acetabulum was extensively diseased, some parts being necrosed, others carious. Such parts I removed with the necrosis forceps and gouge. At one point the disease had resulted in perforation of the fundus, so that I could readily pass my forefinger through it into the abscess cavity, which existed in its pelvic aspect, and feel the thickened fascial structures lining the outer surface of the obturator internus. Since the operation the patient has progressed favourably.—*February* 17, 1877.

CLINICAL RECORDS.

A Case of Dislocation of the Internal Cuneiform Bone, downwards and inwards, in which the bone was replaced. By Henry Fitzgibbon, Surgeon to the City of Dublin Hospital.

Michael Ryan, a deaf mute, aged about twenty-eight years, was brought to the City of Dublin Hospital on the evening of August 2nd, having received an injury to the left foot in the following way:—He was training a young horse with some other men in a soft fallow field, when the horse made a plunge, pitched with one of his feet upon the instep of Ryan's left foot. As it was found that he was quite unable to put any weight upon it after the injury, and was suffering very great pain, he was at once brought to the hospital. He was first seen by Mr. Arthur Denning, the resident pupil on duty. He recognised the character of the injury, but knowing that dislocations of the internal cuneiform bone are not often met with, he determined not to make any attempt to reduce it until I should see it. I saw the case within half an hour of the receipt of the injury. There was no difficulty in coming to a positive opinion as to the nature of the luxation. The arch of the foot was altogether effaced; the bone lay in the hollow of the foot, producing a distinct defined tumour, which projected considerably on the inner margin of the sole of the foot; on the instep there was a deep hollow corresponding to the place of the internal cuneiform bone; this was bounded on the outside by the tendon of the extensor proprius pollicis; on the inside the tendon of the tibialis anticus was tense and well marked; opposite the space between the metatarsal bone of the great toe and the scaphoid the skin appeared to be drawn in, making the depression already described very remarkable. Having satisfied myself beyond any doubt that the internal cuneiform bone was displaced downwards and inwards, I proceeded to replace it in the following manner:—Seizing the foot above the toes with my right hand, and the heel with my left, I placed both thumbs upon the tumour in the hollow of the foot; I then used force with both hands to separate the metatarsal bone of the great toe from the scaphoid, at the same time making pressure with my thumbs upon the dislocated bone. I had not used any very great force when I felt it shoot into its place, and the form of the foot was at once restored. A bandage with a compress upon the sole of the foot was applied, and any attempt to walk forbidden for some days. For a week there was a good deal of swelling, pain, and ecchymosis, but this subsided without

any serious inflammation, and the patient walked about the room without much pain on the 13th of August, eleven days after the injury.

I think the foregoing case is unique; at least I am not aware of any report of a case of dislocation of the inner cuneiform bone alone having been reduced, nor am I aware of any case in which the bone was displaced downwards, except the instance recorded by Nélaton, in which a compound luxation of the great cuneiform bone was caused by the passage of the wheel of a carriage across the foot; in this case the bone was removed.

In all the other cases that I know of, one of which I myself saw, the bone was thrown upwards and inwards above the metatarsal bone of the great toe, forming a tumour on the inner margin of the instep, where it remained permanently irreducible. It seems to me very probable that this accident may often have been met with, and the displaced bone pushed into its place again immediately after the injury had been received, and that from the very facility with which this might be done such cases may have been thought not worth reporting; from the shape of the bone I should expect it to be more frequently displaced downwards and inwards than upwards and inwards, as in the irreducible cases—in all three in number—that have been recorded by Sir Astley Cooper, Nélaton, and R. W. Smith.

PERISTALTIC MOVEMENT OF THE INTESTINE.

M. Jules Guérin's experiments lead him to believe:—1. That matters contained in the intestine do not move along it by virtue of an action *à tergo* resulting from the simple circular contraction of the muscular coat, but by virtue of a double action, propelling and aspiratory, produced by the contraction of the circular and longitudinal muscular fibres. 2. That owing to this double contraction between two continuous parts of the intestine, the upper portion, contracting circularly, pushes its contents towards the lower, while the latter, shortened by the contraction of its longitudinal fibres, advances to meet the former, receives its contents, and draws it in by a kind of aspiration resulting from the relaxation of its fibres, such relaxation producing in this part an increase of length and capacity. 3. This double movement of propulsion and aspiration reproduces itself in each partition, so to speak, of the intestine, the partitioning depending on the valvulæ conniventes, whose borders, brought in contact by the circular contractions, form an obstacle to the retrograde movement of the contents.—*Gazette Médicale de Paris.*

S. W.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, M.D., F.K.Q.C.P.

Vital Statistics

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, July 14, 1877.

Towns	Population in 1871	Births Registered	Deaths Registered	Deaths from Zymotic Diseases							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhœa	
Dublin, -	314,666	677	603	4	58	5	—	4	19	10	24·9
Belfast, -	182,082	468	331	—	13	2	2	1	10	10	23·8
Cork, -	91,965	187	162	—	—	1	—	—	3	5	22·8 ?
Limerick, -	44,209	97	78	—	—	—	—	—	5	4	23·0
Derry, -	30,884	59	40	—	1	—	—	2	—	—	16·8
Waterford, -	30,626	73	58	—	—	—	—	—	4	2	24·8
Galway, -	19,692	38	35	—	—	—	—	—	3	—	23·0
Sligo, -	17,285	21	23	—	—	—	—	—	4	—	17·3

Remarks.

A high death-rate for the season was observed in Dublin, Waterford, and Belfast. In Limerick, Galway, and Cork the mortality was rather high, whereas in Sligo and Derry it was very low. The death-rate was 19·7 per 1,000 of the population annually in London, 21·1 in Edinburgh, and 20·6 in Glasgow. The Cork returns for the week ending July 7 were incomplete. Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the rate of mortality was 23·9 per 1,000 in Dublin. The deaths from zymotic affections in Dublin amounted to 126, compared with 129, 132, and 102 in the three preceding periods respectively. The epidemic of measles still rages, and with even increasing severity—the brunt of the outbreak continues to fall on No. 1 North City District, in which 28 of the 58 registered deaths occurred. Of the 19 fever deaths, 4 were caused by typhus, 12 by enteric, and 3 by simple continued fever. In Waterford, Sligo, and Galway fever caused several deaths. Small-pox was more fatal in Dublin than of late, but in London it continues to decrease

quickly—the deaths in the four weeks numbered 143, against 243, 291, and 292 in the three previous periods respectively. Respiratory affections caused 104 deaths, including 76 from bronchitis and 21 from pneumonia. These numbers, although considerably lower than those registered in the preceding period, were much in excess of the average, particularly in the last week. This was due partly to inclement weather at the beginning of July, and partly to the epidemic of measles.

Vital Statistics

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, August 11, 1877.

Towns	Population in 1871	Births Registered	Deaths Registered	Deaths from Zymotic Diseases							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhœa	
Dublin, -	314,666	659	545	1	51	1	1	5	18	13	22·5
Belfast, -	182,082	454	318	—	15	1	—	2	10	8	22·8
Cork, -	91,965	204	155	—	1	—	1	—	3	7	22·0
Limerick, -	44,209	82	64	—	—	2	—	—	5	4	19·0
Derry, -	30,884	59	45	—	—	—	—	—	4	1	19·3
Waterford, -	30,626	59	35	—	—	—	—	—	3	1	14·8
Galway, -	19,692	23	18	—	—	—	—	—	1	—	11·8
Sligo, -	17,285	24	28	—	—	—	—	—	8	—	21·0

Remarks.

The death-rate of this period was moderate or low generally. In London it was 20·7 per 1,000 of the population annually, in Edinburgh 17·9, and in Glasgow 21·6. Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the rate of mortality in Dublin was 21·7 per 1,000. Zymotics caused 105 deaths in the Irish capital. There is, therefore, a considerable decrease in the fatality of these affections. Measles killed nearly 50 per cent. of the victims to zymotic disease. The epidemic begins to decline, for the deaths registered during the four weeks were 20, 14, 11, and 6 respectively. The mortality due to diarrhœa is very low for the time of year. This is due to the cool, showery weather, so characteristic of the present summer. Fever was very fatal in Sligo, where 28·5 per cent. of the deaths were caused by continued fevers alone. In Dublin there were 5 deaths from typhus, 11 from enteric, and 2 from simple continued

fever. The subsidence of the small-pox epidemic in London continues—the deaths were only 104 compared with 143, 243, 291, and 292 in the preceding periods. Respiratory affections were still unusually fatal for the season in Dublin. They caused 84 deaths—including 53 from bronchitis and 19 from pneumonia—the average number of deaths from these diseases being 35·2 and 9·2 respectively for the corresponding period of the 10 previous years.

Meteorology.

Abstract of Observations made at Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of July, 1877.

Mean Height of Barometer,	29·884 inches.
Maximal Height of Barometer (on 7th at 9 p.m.),	30·298 ,,
Minimal Height of Barometer (on 15th at 7 p.m.),	29·090 ,,
Mean Dry-bulb Temperature,	58·5°
Mean Wet-bulb Temperature,	55·0°
Mean Dew-point Temperature,	51·8°
Mean Elastic Force (Tension) of Aqueous Vapour,	·386 inch.
Mean Humidity,	78·0 per cent.
Highest Temperature in Shade (on 30th),	72·5°
Lowest Temperature in Shade (on 7th),	44·6°
Lowest Temperature on Grass (Radiation) (on 6th),	37·2°
Mean Amount of Cloud,	74·0 per cent.
Rainfall (on 25 days),	3·300 inches.
General Direction of Wind,	W. and N.W.

Remarks.

This was a month of high westerly to north-westerly winds, frequent rains, clouded skies, and comparatively low temperature. It contrasted remarkably with July, 1876, which was characterised by settled weather, light winds, clear skies, and great heat. The barometer was generally high in France, and over the Bay of Biscay, while areas of depression, skirting the northern edge of the anticyclone so formed, travelled across the British Isles from W. to E. Throughout the first week very inclement weather prevailed—the mean temperature was as low as 55·7°, and there was an unusual amount of thunder and lightning with heavy hail-storms on three days. Friday, the 6th, was especially severe—several storms of thunder, lightning, and large hail occurring in the neighbourhood of Dublin, and a keen N. wind reducing the temperature at night to 37° on the grass. A drier period followed, but the sky was nearly always cloudy or quite overcast, with temperate nights and only a slight increase of heat by day. Very bad weather set in on the 14th, when a cyclone travelled northwards from the S. of England at night,

its centre lying over Liverpool at 8 a.m. of the 15th. The rainfall accompanying this disturbance was exceptionally large—in Dublin it was 1·29 inches, in London 1·61 inches, and in Derry 2·43 inches. Broken weather continued to the 26th, after which a gradual but marked improvement took place coincidently with the formation of an anticyclone in the S.W. The shade thermometer in Dublin exceeded 70° for the first time on the 29th—a fact which testifies to the coldness of the month. Rainbows were seen on several days. Thunder and hail were experienced on the 3rd, 5th, and 6th. High winds or gales blew on 6 days.

PERISCOPE.

Edited by G. F. Duffey, M.D., F.K.Q.C.P.

TREATMENT OF POPLITEAL ANEURISM.

Dr. Martin Burke, of the Bellevue Hospital, New York, reports (*N. Y. Med. Journal*, June, 1877) three cases of popliteal aneurism which were successfully treated by pressure by means of a conical shot-bag suspended from a height. The idea is not an original one, but the description of the apparatus used is very complete. The shot-bag should be made of canvas, in the form of a flattened cone, and its apex should measure about one inch in diameter. Either a rounded piece of cork or one of India-rubber, one inch in thickness, should be fitted accurately to the inside of the apex of the cone. A long, thin rod, reaching down to and resting upon the rubber in the bag, should be inserted and held directly in the middle of the cone, while shot is being poured around it, and until the requisite weight is attained, say about twelve pounds. A piece of canvas of the requisite size, with a hole cut in its centre for the passage of the rod, is now tightly stitched over the base of the bag. A stout wire hook being now fastened securely both to the centre of the broad base of the cone, and to the rod as it emerges from that point, to prevent it from slipping from its bed, and tabs having been sewed to the conical point of the bag, it is ready for use. And now to suspend it: A small pulley is driven into the ceiling, through which is passed a rope, both ends of which are to be attached to the wire hook in the shot-bag—with this difference, that one end is passed through rings fastened to the rod, and helps, in a measure, to keep it in place. To the free extremity of the outer end of the rope a piece of rubber tubing, so as to make the apparatus perfectly elastic, is secured, and from a hook in its free end a large linked chain connects it with the hook in the centre of the base of the

shot-bag. The chain is merely to regulate the amount of pressure which it may be desirable to employ. The length of time required to effect a cure varied from six to ten days. The apparatus was easily applied, comfortable to the patients, and certain in its results.

ANTAGONISM OF STRYCHNIA AND NICOTIN.

Since the antidotal property of nicotin in cases of strychnia poisoning was first suggested by the Rev. Dr. Haughton, the text-books of Materia Medica have indicated nicotin as the best remedy in these cases; and cases have been recorded in which persons apparently dying from the administration of strychnia have recovered after the employment of tobacco in some form. A recent number of *The Philadelphia Medical Times* (May 12, 1877) contains the results, with illustrative examples, of 143 experiments made by Dr. Haynes, on rats, cats, rabbits, and dogs, as to this presumed antagonism. The following conclusions, as will be seen, differ from those usually received:—1. Strychnia and nicotin are in no degree antagonistic poisons. 2. Strychnia increases the convulsive action and does not diminish the motor paralysis of nicotin. 3. Nicotin (even in paralysing doses) increases the convulsive action of strychnia. 4. Both poisons cause death by paralysing the respiratory apparatus; they may affect respiration in different ways, but the result is the same. 5. Animals may be killed by injecting together doses of the two drugs which, singly, are not fatal. There is no reason to suppose that the above deductions are not applicable to the human animal. The symptoms of poisoning by the two drugs are identical in man and the lower animals. As regards strychnia, this is too well known to need further remark. In regard to nicotin, it is only necessary to refer to the recorded cases of poisoning by that drug. It may not be out of place to mention the fact that experimentation has proven that nicotin and strychnia show a remarkable similarity in their intimate action on the nervous system, both being excitants of the spinal cord and paralysers of the motor or efferent nerves.

SOLVENT FOR SALICYLIC ACID.

Dr. Barkley makes known, through *The American Practitioner* (June, 1877), that sweet spirit of nitre is the best solvent for salicylic acid. He employs this formula:—Salicylic acid, one drachm; sweet spirits of nitre, four ounces. Sig.—One teaspoonful every two hours, for children; two to four teaspoonfuls for adults. It can be diluted with water if necessary, and can be combined with veratrum, gelsemium, aconite, &c. One ounce of nitre will dissolve sixteen grains of the pure acid, and make a clear solution. If that quantity of acid is increased,

on the addition of water, the acid is precipitated—the mixture becomes semi-solid; add a little more of the nitre, and it becomes a clear solution again. Dr. Barkley adds that in the treatment of intermittent and remittent fevers, salicylic acid is a remedy of great power and value, generally relieving those diseases within forty-eight hours.

NITRITE OF AMYL IN SEA-SICKNESS.

Pour three drops, or more if required, of nitrite of amyl on a handkerchief, and let it be held closely under the nose of the sick person. The inhalation should be performed rapidly, so that there may not be too great an admixture of air. Immediately the patient feels his temples beat; he feels warm, and the surface of his body becomes more or less reddened in colour. This reaction lasts about half an hour; then he falls asleep and awakens with an excellent appetite. If the sickness returns, which it never does for twenty-four hours, the inhalation may be repeated. It seems to act more efficaciously when the first vomiting has occurred. Out of 124 cases in which this remedy was tried by one observer, the sickness ceased immediately, without returning, in 121; it returned in the remaining 3, and 1 case required a third inhalation.—*L'Union Médicale.*

S. W.

OBSERVATIONS ON NEUROPATHOLOGY.

I. Two cases of severe peripheral facial paralysis are noticed by Bernhardt (*Arch. f. Psych.* and *Centralbl.* No. 9, 1877), in which loss of taste occurred in the anterior two-thirds of the half of the tongue on the affected side, pointing to implication of the chorda tympani—and yet, at the same time, over the same region, there existed a diminution of the function of sensation to pain and touch. There must, therefore, exclusive of the gustatory nerve, be an intimate connexion between some filament of the facial nerve in its course and some sensory filament of the fifth. In this case the facial nerve in its trunk is analogous to one of the mixed peripheral nerves. On this assumption the sensory branches can, in spite of severe injury, remain intact, and, in like manner, in severe facial disease engaging even the upper half of the course of the *nervus stapedius*, the function of the chorda tympani remains unaffected. The following observations tend to confirm this conclusion:—The action of the continuous current on the auditory nerve in five clinical cases, which resembled each other in being all examples of fracture of the base, differed very considerably, without any ground for such difference being found. In three the nerve did not respond on either the sound or the affected side, while in the other two hyperæsthesia of the ear on the affected side was evident—hearing was completely lost in four of them, and in one it was only much diminished. No *post mortem* examination was made in any of these cases. The

most instructive case is one recorded of deafness following on otitis interna. In it observations made at two different times—one early in the disease, the other two and a half years after—gave very different results, in spite of similar objective conditions; for hyperæsthesia developed itself certainly for the first time during the latter investigation. The observation is particularly interesting for this reason, that while under treatment a paralysis of the facial occurred, and, during the two or three days of its existence, a marked increase of the galvanic stimulus of the nerve was noticeable, accompanied by a contemporaneous diminution of the faradic stimulus.

II. In consequence of a wound an isolated paralysis of function of the right trigeminus in all its branches occurred in a carpenter who had been previously quite healthy. The facial nerve was completely untouched, but nevertheless the sense of taste in the anterior two-thirds of the right half of the tongue was lost. As in this case there was a lesion of the fifth nerve alone in the base of the skull, the filaments of the chorda tympani, which preside over taste, must have been involved in this portion of the root of the fifth.

J. M. F.

A NEW METHOD FOR THE QUANTITATIVE ESTIMATION OF UREA.

Dr. George B. Fowler, in the *New York Medical Journal*, June, 1877, after referring to various methods of estimating urea quantitatively, says that it occurred to him that the difference in the specific gravity of a fluid containing urea, before and after decomposition by the hypochlorites or hypobromites, should bear a definite relation to the quantity of urea originally present in the solution. This idea was suggested by Dr. Roberts' plan of determining the amount of sugar in a solution by the difference in specific gravity before and after fermentation. The reagent which Dr. Fowler has found most convenient for his analysis is sodium hypochlorite (the liquor sodæ chloratæ of the Pharmacopœias, on account of its cleanliness, and because it is easily procured). It should be a standard solution, having a specific gravity of about 1048, and give no opacity when added to urine. The hydrometer should have an index ranging from 1000 to 1050. Dr. Fowler's preliminary experiments were performed with solutions of pure urea of known strength, and it was found that after decomposition every degree of density lost indicates 7.791 milligrammes of urea per cubic centimetre of the solution (3·55 grains per ounce). Or every degree lost corresponds to ·77 per cent. The results of the new process, when compared with those obtained with the same specimens by Liebig's process, were in excess of those by Liebig's by a few thousandths of a milligramme, which was probably due to the decomposition of nitrogenous ingredients other than urea. In order to use this method the process is as follows:—Procure two glass

cylinder jars, one about nine inches in height by one and a half in diameter, the other about seven inches by one inch. Into the smaller pour a quantity of the urine, and ascertain its specific gravity. Take about fifteen cubic centimetres (one-half ounce) of it and pour it into the large jar. Now wash out the smaller jar thoroughly, and in it take the specific gravity of the hypochlorite solution. Then add to the urine in the large cylinder exactly seven times as much hypochlorite as there was urine taken. When the two fluids mingle there will be a brisk effervescence, and care must be taken that none of the mixture be lost. After several minutes the disengagement of gas is less rapid; and now, by vigorously shaking the jar at short intervals, the process is hastened, so that at the expiration of an hour the decomposition is complete. It then only remains to take the gravity of the quiescent solution, deduct from what it was before decomposition, and estimate the amount of urea on the basis already given; after this manner—suppose the specific gravity of urine to be 1020, and that of the hypochlorite to be 1045. But it is impracticable to take the specific gravity of the mixture of these two on account of their immediate reaction; we therefore resort to the law of proportion, and estimate it as follows:

1 part at 1020	=1020
7 parts at 1045	=7315
8	)8335

$1041\frac{7}{8}$ sp. gr. of mixture.

From the gravity of the eight parts we subtract that which is obtained after decomposition, which, we will say, is $1038\frac{7}{8}$. There is then a loss of 3°. Every degree of loss equals 7·791 milligrammes per cubic centimetre of urine used. Therefore, the urine contained 23·373 milligrammes of urea per cubic centimetre, or 2·3 per cent. It is important that the temperature of the fluids should all agree when their specific gravity is taken. This may be regulated by the use of a plain thermometer, or by the combination hydrometer and thermometer now so generally employed. But the simplest method is to mix the urine and reagent, and set the mixture aside with the pure urine and hypochlorite in the same locality, when the specific gravity of the three can be taken at a uniform temperature. The presence of neither albumen nor sugar interferes with the accuracy of this method. When the urine contains a great excess of urea, more than would be decomposed by seven parts of hypochlorite, it is simply necessary to dilute it with an equal volume of water, use one part of the dilution to seven of the reagent, and multiply the result obtained by two.

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OCTOBER 1, 1877.

PART I.

ORIGINAL COMMUNICATIONS.

ART. X.—*On Aneurismal Sacs.* By W. COLLES, Surgeon to the Queen in Ireland; Regius Professor of Surgery, Dublin University; Surgeon to Steevens' Hospital, &c., &c.

IN a former number of this Journal I advanced the opinion that the layers of lymph deposited in the sac of an aneurism were formed by the walls of the sac itself, and were not, as is generally taught, a deposit from the blood which is coagulated in the sac. Further experience tends to confirm this opinion.

If the modern doctrine were true, we should expect to find some traces of a state of transition from one coagulum to the other—from the passive to the active. This, I believe, has not been observed.

We would, from analogy, from pathological observations, and from some results of treatment, support the view now advocated. In the first place, we find this fibrin deposited in layers in many parts of the body where there are no passive clots—in bursæ, as of the patella, we often find this entirely composed of fibrin in layers—at times also in the cavity of the tunica vaginalis; and in diseased conditions of the serous cavities—the peritoneum, pleura, pericardium, and arachnoid—the same deposit in layers is observed; hence there is no reason why the same process should not go on in the sac of an aneurism.

We may also observe that in an aneurism by dilatation we have not those layers of lymph so generally formed, because the lining membrane of arteries is not disposed to the secretion of lymph.

It has been objected to this doctrine that the outer layers are white, more firm and adherent than the inner, which are loose and dark-coloured, but this, if an objection, may be accounted for by the action of the fluid blood softening and even wearing away these layers, as we find occurs in the growth of bone, the outer layers secreted by the periosteum, and the inner acted on by the medullary membrane.

We now come to the pathological changes—and here we must remark the slight attention paid to phenomena of constant occurrence, and to the observations of former surgeons, when they do not agree with modern doctrines. If we look at the writings of the ancients, in their observations collected for the Sydenham Society by Mr. Erichsen, we find they observed the progress of the disease more accurately than modern surgeons, and their observations would make us hesitate in accepting the present theory. We especially direct attention to the progress of an aneurism when encountering a surface of bone, but which modern surgeons are satisfied to attribute to the pressure of the sac causing absorption of the bone. This, however, is not the case. The first change observed is that the sac of the aneurism becomes closely adherent to the bone for a considerable extent; that then the centre of this adherent portion of the sac disappears, and with it all the layers of lymph, so that the stream of fluid blood comes to wash against the bone, which gradually disappears, not by necrosis or caries, or any other process that we can explain, and so led our ancestors to say that the blood corroded the bone. The case recorded by Dr. Grimshaw, with the illustration, in the August number of this Journal, p. 189, affords a beautiful illustration of these changes. Here we find all these changes have occurred, and on making a vertical section of its central column, we find a kind of tunnelling process going on in the cancellated structure in the centre of the vertebræ, which, of course, gradually increases till the portion of bone engaged has disappeared. Having thus perforated the opposing bony partition, a new sac is again formed outwards, and again secretes the layers, but as it is so thin and so compressed, it cannot long resist the powerful distending force of the circulation, and therefore goes on rapidly to the giving way either externally or into some neighbouring tissues; thus the rough bone will form part of the wall of the aneurism,

or even in a case of a rib, be found projecting into the sac, and always remains without any fibrous layer over it.

Now, we can readily account for the disappearance of these layers if we consider them derived from and dependent on the sac for their origin and support, but that disappearance is totally inexplicable on the theory of their being a deposit from the blood.

Finally, we would appeal to the results of treatment. In the book alluded to (Sydenham Society), "Aneurism," by Erichsen, we find older surgeons making many efforts to cure aneurism by pressure on the sac, and in many cases successfully, but they often failed from their violent efforts at once to entirely control the flow of blood, causing thus great pain to the patient. We would also refer to some cases recorded by the late Mr. Cusack (Vol. I. of this Journal), where he cured many cases of traumatic aneurism, and all of which, with others not recorded, I witnessed. He applied a piece of soft sponge over the aneurism, and retained it with a bandage, but applied at first so loosely that the entire dressing was found loose after the night's rest; yet very gradually continuing the pressure on the sac alone, he effected a cure in many of those cases in a short space of time. In those cases there was nothing to encourage the coagulation of blood and its change into lymph. But these cures are explicable on the supposition that the pressure supported the walls of the sac—was an obstacle to their further rapid distension; that these layers of lymph now deposited pushed those previously secreted more to the centre, and so filled up the cavity, which layers would, without this support, have been dilated by the distending force of the current of blood acting on inelastic tissue.

In either view of the course of this disease, our principal object is to arrest or materially impede the flow of blood into the sac. According to the present received opinion, the surgeon seeks to have the sac filled with passive coagulum, and is then content—not considering that if the passive passes into the active coagulum, it must leave an empty space in the sac, by which the pulsation must again continually return till the sac is entirely filled up. These frequent recurrences are not observed.

According to the view of the case now advocated, we arrest the flow of blood to prevent the distending action of the circulation on the inelastic walls of the sac, which are constantly yielding, and the layers of lymph deposited also are unable to resist this distension, and are thus prevented effecting the object of their formation—the filling up of the sac.

We sometimes observe an aneurism apparently cured by compression, but on leaving off this treatment the pulsation will return, and the disease again progress. This we can explain by the action of the fluid blood dissolving and carrying away the coagula when the fibrous layers are not sufficiently formed. The filling of the sac by soluble coagula is not to be relied on as effectual, or even necessary to the radical cure of the disease.

But the principal alteration we would suggest would be to make some gradually increasing pressure on the tumour, so as to prevent the distending force of the heart acting on an inelastic tissue, and so allow the growth of the layers to go on towards the centre, and not to be washed over the increasing circumference of the sac and its layers of lymph by the current of blood.

Such pressure, I think, materially assisted in the cure of an aneurism, recorded by me in the *Irish Hospital Gazette* (Vol. II., page 259), where pressure for six months on the femoral artery merely prevented the disease increasing till this pressure was assisted by the weight of a bag of shot, gradually increased, placed over the sac of the aneurism, when consolidation soon occurred.

These various considerations would lead me to reject the present theory, which cannot explain many of the phenomena observed in the course of the disease, and which, I think, are more readily understood if examined with the doctrine now inculcated, and may, I trust, lead to a better understanding of the efforts of nature in curing this disease, and also the objects to be held in view in the surgical treatment. As at present, the only anxiety on the part of the surgeon is to cause coagulation of blood, which he considers essential to the cure, and, though often successful, is not to be relied on as effecting a radical cure. The patient is not safe till the entire sac is filled by organised layers of lymph, which may be formed independent of the passive coagula, and when formed and having obliterated the cavity, will then undergo absorption.

ART. XI.—*Operative Interference in Croup.* A Thesis read for the Degree of Doctor of Medicine, Univ. Dubl. By GLYNN WHITTLE, B.A., M.B., Cantab.

HAVING reviewed the history of tracheotomy in croup, I have been struck with the high mortality which has followed the operation, more particularly in the early periods of its performance. The operation was first successfully performed by John Andrée, a

London surgeon, in 1782. In 1818 and 1820 it was performed without success by Bretonneau, but in 1825 successfully by that distinguished French physician. Trousseau shortly afterwards had his first successful case, which is reported in the first number of *Le Journal des Connaissances Médico-Chirurgicales.* From that time tracheotomy may be said to have taken an established place in the treatment of croup. The earliest statistics were published in 1839, and then 140 cases showed 28 recoveries. In 1858, 410 cases showed 141 recoveries. Up to 1849 the operation had been performed in the Hospital for Sick Children in Paris 49 times, with only 1 recovery. From that date to 1862, 991 cases were submitted to operation, with 233 recoveries; while during the same period tracheotomy was performed 1,261 times in the Eugénie Hospital, with 229 recoveries. The statistics of Roser, Professor of Surgery at Marbourg, who advocates that tracheotomy should be performed before symptoms of asphyxia set in, show as large a proportion as 40 per cent. of cases in which the operation had been successful. In this country, Spence has operated 103 times, with 34 recoveries, and Buchanan 46, with 17. Although the advocates of tracheotomy in croup are from time to time publishing statistics to prove that the proportion of successful cases is considerably greater than when the operation used merely to be performed literally *in extremis*, nevertheless I think tracheotomy is practised much less frequently in croup than it deserves to be, and that it is but too often postponed till the patient is at the point of death; nor does its consideration seem to me to be adequately treated in the text books of this country.

Croup has been variously classified by different writers. Tracheotomy may be required in any form of croup, except perhaps in laryngismus stridulus, and in that mild form of croup which occurs occasionally at the onset of the exanthematous fevers, and may be termed sympathetic croup, always disappearing when the rash comes out on the body. I have here spoken of laryngismus stridulus as a variety of croup, though in reality it is quite a different disease. I observe that some physicians recommend tracheotomy in laryngismus stridulus, but I cannot conceive a case of this disease in which the operation would be practicable; for assuredly an attack of laryngismus stridulus would terminate fatally or favourably before the preliminaries of an operation could be arranged. To discuss the pathology of laryngismus stridulus would be foreign to the title of this paper, but I think it expedient briefly to state the heads under

which it may be considered, in order to explain how frequently this disease has been confounded—even by high authorities—with angina stridula, that variety of croup which may be most successfully treated by tracheotomy. I regard laryngismus stridulus as a purely nervous disease, the spasm being due to one of two causes—(1) "centric," depending on some disease of the brain, as hydrocephalus, or disturbance in the cerebral circulation or nutrition, or pressure upon the brain, when the child lies on its back owing to the thinness of the occipital bone in rickety subjects; (2) "reflex," due to some irritation of the vagus or recurrent nerves from enlarged glands or tumours, or to irritation in some other parts of the body, more particularly teething and derangements of the alimentary canal, such as worms. In laryngismus stridulus arising from this cause, the spasm is due to "peripherally reflex" action, if I may use the term, in contra-distinction to the spasm of angina stridula, which is "directly reflex."

Angina stridula is inflammation of the mucous membrane of the larynx and trachea without formation of false membrane, but giving rise, by direct reflex action, to spasm of the glottis. This is a dangerous variety of croup in England, where it is almost invariably confounded with pseudo-membranous laryngitis, and hence not generally described in the current text-books. It begins with slight hoarseness and cough, which attracts little attention at first. This may last for two or three days, or even for a week, being temporarily allayed by hot drinks or simple cough medicine. By-and-by feverish symptoms set in; the breathing is quick and sibilous—not as loud, however, as in cynanche trachealis; the cough is sharp and barking, and more frequent than in true croup. The ringing sound of the cough is caused by the volume of air being forced through the constricted glottis. In this stage of the disease relief may be obtained by moderate purging, emetics, hot bath, and inhalation of steam. But if no relief follows this treatment, after some hours the breathing becomes more distinctly crowing; the child assumes almost a convulsive action, as it throws back its head and stretches out its hands in the struggle for breath; the pulse is quick; copious perspirations are present. If the operation is now postponed, the well-marked symptoms of asphyxia will soon supervene—dilated nostrils, blueness of lips, lividity of face, flickering pulse with semi-insensibility.

This disease is described by some French authors. Bretonneau, regarding it as the acute asthma of Millar, describes the cough as

resembling the barking of a young dog heard at a distance; and, to show how striking the resemblance, I may state that the coughing of a patient, suffering from this disease, was actually mistaken, when heard at a little distance, for the barking of a dog by a well-known Liverpool physician. Bretonneau goes on to state that the spasmodic dyspnœa is vastly in excess of all other symptoms, and would greatly heighten the apparent danger if the rhythm of the circulation and the state of the pharynx did not at once counteract any such fears. Altogether he seems to regard angina stridula as quite an unimportant disease. Under the head of "stridulous angina," he curiously confounds this disease with laryngismus stridulus. Although acknowledging that the anatomical characters of the indisposition are unknown to him, he states that the inflammatory lesions of the glottis or of the larynx are undoubtedly very slight, but subsequently adds that he does not think the spasmodic constriction of the glottis either produces or aggravates the affection; and he considers that the intermittent nature of the morbid phenomena have induced us to look upon them as purely nervous. He then very properly explains that spasm of the trachea can have nothing to do with the suffocation, as the action of the muscular fibrils entering into its composition must be very slight, and that it is no less capable of resisting the contraction of the muscles which surround it than it is capable of resisting the atmospheric pressure. Bretonneau states that he never had a fatal case of this disease, but he describes several which terminated favourably. One case is described, in detail, in his second memoir in the third volume of the New Sydenham Society's books. I will briefly note its prominent features. The child, aged thirty months, quite well in the morning, was in the evening suffering from dyspnœa, hoarse cough, sibilant and stridulous inspiration. Each inspiration was laborious and sonorous, and accompanied with convulsive extension of the extremities; at the same time the face and lips became of a violet colour; in the intervals of the paroxysms the child continued to play. Next day the tonsils were not reddened, nor was there tumefaction at the side of the neck. On the third day the symptoms began to improve, the cough becoming softer and less painful, the breathing easier and less frequent, and on the sixth day the child was quite well. Bretonneau considers, from the febrile excitement and the intensity and duration of the paroxysms, that the mucous membrane of the larynx was undoubtedly affected with a rather acute catarrhal inflammation.

The same physician also describes two fatal cases of what he terms "tracheitis"—one occurring in a child of six, the other in a child of three; but, from the history and the description of the *post mortem* appearances, I think it very probable that they were cases of angina stridula, in which, perhaps, the spasmodic symptoms were not as strongly marked as usual. In one of the cases, indeed, the mucous membrane of the larynx was thickened and of a bright red, while the earliest symptoms were hoarseness and acute pain referred to the larynx, so that probably the laryngitis preceded the tracheitis.

Guersant, writing on croup, strongly criticises Albers, of Bremen, for refusing to acknowledge two species of croup—one inflammatory, and the other purely spasmodic. Albers bases this opinion on observing alternations of attacks and remissions in true croup, which he considers to be unexceptionable proof in support of his views. Guersant, while clearly distinguishing spasmodic or nervous croup from croup with false membrane, nevertheless, under the term "stridulous laryngitis," confounds laryngismus stridulus and angina stridula. While strongly condemning the identity which some authors had attempted to establish between stridulous laryngitis and croup with false membrane, inasmuch as they arise from similar causes, he states that this error involves most serious consequences, because the treatment of the two diseases is very different. To prove this statement he adds that in several cases of recent occurrence some highly distinguished physicians had performed tracheotomy on persons affected with suffocation and croupal voice who were considered to be suffering from croup, but that the *post mortem* examinations demonstrated that there was no false membrane, and consequently no croup. He distinguishes his stridulous laryngitis from croup with false membrane by the cough being loud and sonorous in the former, but hoarse, stifled, dry, and appearing as going back into the larynx in the latter. He says also that the voice is merely hoarse in stridulous laryngitis, but suppressed in true croup, in which the patient is almost completely voiceless, and that the tone of the cough has something of a metallic character like the voice.

Bouchut also describes stridulous laryngitis. Endeavouring to establish a precise distinction between this disease and true croup, he states that stridulous laryngitis is accompanied, like croup, with dry, hoarse, sibilus, and more or less sonorous cough, great dyspnœa and suffocation, but the larynx is free, and there is no

false membrane. The phenomena observed are purely nervous, they soon subside, and their progress is altogether peculiar. They appear suddenly, and in a very high degree of intensity, in subjects who are otherwise in good health or slightly affected with cold. They manifest themselves in the middle of the night; the paroxysm lasts about two or three hours and is reproduced on the following two or three nights in succession. This also appears to me to be a hopeless confusion between the two diseases.

I have now to discuss the views held by the distinguished Trousseau on these two diseases. Stridulous laryngitis, he tells us, is characterised by suffocative seizures, the cough and voice are croupy during the whole course of the malady; even in the intervals between the paroxysms the patients retain a certain amount of hoarseness in the cry, in the voice, and in the cough. In spasms of the glottis the attacks occur equally day and night; the suffocative seizures are not accompanied by hoarseness of cry, voice, or cough. The paroxysms do not occur two or three times in the space of a few minutes, but are separated by long intervals, during which the patient breathes easily. These distinctive points are correct as far as they go, except that attacks of stridulous laryngitis occur by day as well as night; but Trousseau proceeds to state that the latter disease is liable to extraordinary exacerbations and remissions, which certainly do not in general characterise the disease in this country. Sometimes, he says, the dyspnœa and anxiety are as great as in the last stage of true croup; the countenance is turgid; the eyes express profound terror; the character of the cough, voice, and laryngeal whistling are such as to strike terror in families, and frighten even physicians themselves; however, in half an hour, an hour, or two, or three hours, the frightful crisis has terminated, the child becomes calm, sleep returns, the pulse is less rapid, and the skin is somewhat moist; when he wakes the cough is still croupy, but it is more moist, and in the morning it is still more catarrhal, respiration is less whistling, and the voice has nearly regained its natural tone. Trousseau goes on to state that these symptoms recur for several successive nights, the patient having good days with an almost total absence of fever. Inspection of the throat with the minutest care fails to detect any false membrane. The mucous membrane may be red and the tonsils inflamed, but there is no swelling of the glands in the cervical and submaxillary regions. It is in this sudden way, he adds, that false croup declares itself the disease which cures itself, for whatever is done, however

inopportune and irrational the medical intervention may be, it is seldom capable of rendering the affection dangerous, so little is there in its nature of a serious character. With this I quite disagree, for I believe that a child with such severe symptoms as those I have described in Trousseau's words could only be relieved by tracheotomy. Trousseau, however, admits that patients may die of stridulous laryngitis, but repeats that this is exceedingly rare. He describes a case in a lad of thirteen, the autopsy showing swelling of the vocal chords, redness of the mucous membrane, and swelling of the aryteno-epiglottidean folds, but no false membrane. Trousseau's distinctions between this disease and (true) croup are much the same as Guersant's, but with this addition, that membranous croup is more insidious in its origin, stridulous laryngitis setting in abruptly.

Niemeyer gives a brief but very imperfect account of acute catarrh of the larynx occurring in children, stating that a fatal termination, uncomplicated by any other cause of death, is one of the greatest of rarities. Like Trousseau, he represents the spasmodic attacks as being almost exclusively nocturnal, the children playing about gaily in the intervening days, perfectly well, with the exception of a slight cough. He does not consider that the paroxysms of dyspnœa are caused by spasmodic closure of the glottis, allied to the mucous irritation by reflex action, but suggests that the suffocation is occasioned by a collection of tenacious secretion in the glottis, and, perhaps, also, by a dryness of the rima glottidis, which tends as it were to glue it up. This reason, he considers, accounts for the success attending the administration of warm milk, the hot sponge laid upon the throat, and judiciously administered emetics, and also explains why the attacks take place almost solely during sleep, pass off as the child has cried, coughed, and vomited awhile, to recur almost as soon as he falls asleep again; but how, I ask, can it account for those graver cases which undoubtedly occur where the dyspnœa is continuous and progressive, and where—if tracheotomy does not succeed—the autopsy reveals intense inflammation of the larynx without formation of false membrane?

Dr. Roberts does not describe laryngeal catarrh as a disease common in children, but states that when it does occur the dyspnœa is often considerable, especially after sleep, in consequence of viscid secretion causing the edges of the glottis to adhere.

In the later editions of his lectures on the principles and prac-

tice of physic, Sir Thomas Watson describes infantile laryngitis, which had been allowed to pass unnoticed in the earlier editions. Regarding it as a more serious disease than the authors whose views I have already discussed, he states that we must judge of the existence of infantile laryngitis by the symptoms collectively, and the rapid progress of the malady, rather than by any particular or pathognomonic sign. He does not, like Trousseau, represent the attacks as coming on almost exclusively during sleep, nor does he describe the disease as coming on very suddenly. On the contrary he states that the child has a cold, coughs, sneezes, is hoarse, feverish, and fretful, and does not sleep for a day or two before the signs peculiar to laryngitis begin to show themselves.

It seems strange that so many Continental authorities should regard stridulous laryngitis as a trivial complaint; but, perhaps, this may be partly accounted for by the disease taking a much less serious form in the comparatively dry climates of Germany and France. A subacute inflammation of the larynx with some spasm may take place in those countries, and subside in a few days without giving rise to alarming symptoms; perhaps, also, most of the fatal cases which have occurred have been diagnosed to be cases of cynanche trachealis, no *post mortem* examinations having been made showing the absence of false membrane.

Cynanche trachealis, true croup with false membrane, is characterised by the suddenness of the attack, which generally comes on at night. A child may go to bed quite well and wake up in the night nearly suffocated. The cough, which is not sonorous and loud, but hoarse and muffled, is at first very frequent. The dyspnœa is an early symptom, and simultaneously with it there is produced a laryngo-tracheal whistling accompanying each inspiration, but heard less loudly with expiration. This is explained by Trousseau, by the lips of the glottis having a tendency to approach each other during inspiration, but to separate with expiration. As the false membrane is deposited on the vocal chords, the voice and cough become more and more changed, until at last they may both cease. Cynanche trachealis may be distinguished from angina stridula by the occasional barking cough and hoarseness existing for two or three days in the latter disease, before the acute symptoms appear, and by the feverish symptoms also being more insidious up to the time when the spasmodic symptoms set in. If a physician is called in to an advanced case of croup, the stifled cough and aphonia of cynanche trachealis, in contradistinction to the louder cough and

voice of angina stridula, may help to guide his diagnosis, but he must rely mainly on the history of the case as given by the parents of the child. The intermittence of the suffocative symptoms—present in the early stage of both these forms of croup—is due to spasmodic stricture of the glottis, caused by the inflammation of the mucous membrane of the air-passages, or by the presence of the plastic lymph (false membrane) poured out into its cavity.

Croup is not unfrequently a complication of diphtheria. Pseudo-membranous pharyngo-laryngitis differs from the varieties of croup just described by the fever being asthenic in character from the first. It commences with shivering, followed by fever and moderate sore throat, accompanied by pain in the front of the neck, and more or less swelling of the submaxillary glands. The pharynx is red, the tonsils swollen; little white patches are observed on the tonsils, the palate, or uvula. This condition may last for four or five days; but in some cases the disease advances with great violence, and rapidly affects the larynx, so that the symptoms about to be described may supervene on the second day—namely, short paroxysms at brief intervals of a hard, dry, cough, accompanied with aphonia and symptoms of suffocation, the patient starting up, seized with a dyspnœa, which is out of proportion to the short duration of the paroxysm. As the disease advances there is an increase of all the symptoms—complete aphonia; paroxysms of coughing seldom, and quite dry; breathing metallic and hissing; pulse and respiration very frequent; face pale; lips livid; the head is thrown backwards; and drowsiness may be added to the other symptoms. The patient dies asphyxiated.

Among the varieties of laryngeal disease which have been included under the generic term of croup, are spasmodic croup, from an ulcerated condition of the larynx, the spasm being excited by the irritation, and the ulcer being either syphilitic or following the ulcerated throat of scarlatina or small-pox, and mechanical croup, from œdema of the glottis, generally resulting from chronic disease of the larynx. I may also allude to another form of croupy breathing, occasioned by aneurisms, or other tumours pressing on the recurrent nerve.

When should tracheotomy be performed in cynanche trachealis? If, after medical treatment has had a fair trial, croup, nevertheless, advances until asphyxia is threatened—although the physician may not be able to state positively that the disease will necessarily be fatal without the operation—I think tracheotomy should be per-

formed. The spasmodic breathing is now continuous, the cough frequent and becoming stifled, the face red, pulse throbbing, and the child struggles convulsively for breath. But if this stage has been allowed to pass, as commonly happens, before the friends of the patient will consent to the operation—if the symptoms of asphyxia are well marked—the chances of successful tracheotomy are greatly diminished. However, as it is now evident that the patient cannot long survive without an opening in the trachea, I would still recommend the operation, as a last resource, with some slight chance of success. With regard to complications, if the patient is phthisical, or if there is pneumonia, an operation should not be undertaken. If the asphyxia has proceeded very far, if the face has a peach-coloured hue, and the pulse is weak and flickering, while the plastic exudation has extended to the bronchi, an operation would be worse than useless. A practised auscultator would readily tell with the stethoscope whether the bronchi were implicated, but if there is a doubt as to whether the "whistling" is bronchial, or the sound merely transmitted from the trachea, the expiratory rhonchus, nearly equalling the inspiratory, will point to exudation in the bronchi.

In angina stridula I would also operate before the symptoms of asphyxia are well marked, as giving the patient a much better chance of recovery; but, even if asphyxia has set in, I would operate to the patient's last gasp, there being no false membrane, and the local inflammation and spasm constituting the chief source of danger. Increasing pallor, perspirations, lividity of lips, weak and failing pulse, together with a sinking in at each inspiration of the thoracic parietes and suprascapular spaces, indicate the moribund condition of the patient. With these symptoms the operation should not be delayed a moment.

In croup, existing as a complication of diphtheria, the operation should be performed in the second stage of the disease. If postponed till the third stage, tracheotomy may be followed by temporary relief, but very rarely effects a cure. Moreover, if the symptoms which I have described above as constituting the second stage have been established, it is most rare for the disease to yield to medical treatment. Owing to the tendency of the system to become saturated with the specific poison, in deciding to operate or not in the third stage, the physician must be guided, as far as possible, by the predominance of the symptoms of asphyxia over all the patient's other symptoms. If a weak and rapid pulse, delirium

and great prostration indicate extreme poisoning, tracheotomy is useless, for it is always followed by death.

In spasmodic croup, from ulcerated larynx, and in mechanical croup, from œdema of the glottis, tracheotomy may be sometimes required. It is, however, impossible to lay down any precise rules for operative interference in such cases, which must be judged individually on their own merits. I may mention that tracheotomy is almost always fatal when performed in young infants (who die, it would seem, from traumatic fever); and, except with a very favourable case, perhaps it would be wiser not to operate on patients under two years' old.

I must not conclude without adding another by no means unimportant reason for timely tracheotomy in croup. The direct dangers of the operation—hæmorrhage, shock, suffocation from blood passing into the windpipe—are much heightened by the patient being in a state of asphyxia.

Art. XII.—*Acute Lateral Curvature of the Spine.* By Thos. P. Tuckey, M.B., Castletownroche.

Ordinary lateral curvature of the spine, or scoliosis, is so common, and has been so often described, that this paper would not merit publication were it to treat of the usual affection. The disease, which I have named acute lateral curvature, is, however, so rare as to merit a description, the more so that I have not seen it mentioned in any surgical work. Mr. Elliott mentioned that he had seen only three cases of it; he is a gentleman of such vast experience in spinal complaints that I think it conclusive evidence that the disease is a rare one. The name I have given the disease was first given it by him in conversation with me on the subject. I thought it such an admirable one that I have retained it, the more so that it has the advantage of calling to mind its chief peculiarity—viz., its *acuteness*.

Acute lateral curvature, therefore, is to be distinguished from the ordinary complaint by the suddenness of its advent, and, I may add, by the suddenness of its disappearance under treatment. The disease is also of peculiar interest from its liability to be mistaken for morbus coxæ. Prominence of the hips is a common symptom in ordinary scoliosis, but the other symptoms of morbus coxarius—such as flattening of the nates, pain on pressure over the trochanter, and pain in the knee—are not common, and I am not aware that

eversion of the foot has been seen in ordinary lateral curvature. All the latter symptoms of this disease are common to acute lateral curvature—so marked are they that I have seen and heard of the very best surgeons making a mistake as to the seat of the disease. The patient whose case I am about to record as a good specimen of the disease, came under my care with a blister over the trochanter, and it was the mention of a seton which drove her from her former attendant. He was no bungler, but a man of great skill and experience, and I am sure would not have made the mistake had time allowed him to make a more prolonged examination:—

Miss M., aged twenty, was formerly under my care, labouring under chlorosis of an aggravated description. Under treatment she became quite well, and resumed her occupation in her father's shop. Her family were all healthy and robust, with the exception of one sister, who suffered from scrofulous glands in the neck. She then left my care, and went on a visit to a married sister who lived at a distance. I was somewhat surprised on getting a summons to visit her in a few days, her father stating that she was quite crooked, and that the surgeon in the town where her married sister lived had stated she was labouring under disease of the hip-joint. On entering the room I was at once struck with her appearance—she looked so like a girl suffering from morbus coxæ that I had hardly any doubt as to the nature of the case. I, however, make it a point to go through the routine of examination, however sure I may be of the nature of the malady, and I was at once struck with two points in the case—one was absence of pain on rotation of the thigh; the second, absence of pain on striking the heel. These are such invariable symptoms of morbus coxæ, that I determined to explore further, and, on stripping the patient, immediately discovered the cause of the whole matter. A well-marked double lateral curvature was presented to my view, a primary dorsal, with a compensating lumbar, the convexity of the former to the right, of the latter to the left; the prominence of the ribs on one side and the concavity on the other were well marked. There was marked eversion of the left foot, and great prominence of the corresponding hip; severe pain on pressing over the left trochanter, and walking was very distressing, and caused great pain. There was no perceptible change in the position of either mamma. On questioning Miss M. as to the mode of invasion of the disease, she stated that she had taken a long walk, and went to bed much tired; next day she woke up with the pain in the hip, and in a couple of days became quite crooked. Up to the day of her taking the walk she felt quite well, but since then became very weak and pale. Her menstruation was regular, and her appetite good; bowels sluggish. Now here are a remarkable group of

symptoms. A girl leaves my care, well and strong-looking, fat and rosy, all her functions in a state of health; she goes to another town, and about a week after leaving, takes a tiring walk, and comes home in a few days with most marked double lateral curvature, so lame that she can hardly walk, and with such pains in hip and back that she cannot sleep at all. But if the suddenness of the attack is surprising, the rapidity of recovery is more striking still. This being the first case of the kind I had seen, I was puzzled by the rapidity with which the deformity had occurred. I therefore advised her to go to Dublin and consult Mr. Elliott. She accordingly went, and came back in a little over three weeks completely well. I could detect no sign of a curvature; the prominence of the hip and the other symptoms simulating hip-disease had vanished, and the closest scrutiny could discover no signs of disease. By the help of tonics and suitable apparatus she was completely restored to health, and to her normal and comely shape. I am sorry to say her recovery was not permanent. She continued well for over a year, when she began work again. Close attention to her duties in the shop, and want of proper air, brought a return of the chlorosis, and with it back came the curvature—she *literally tumbled down.* I saw her on Monday, to all appearance straight, and on Wednesday I was called in to see her, and she was, if possible, more deformed than before. This time she preferred remaining at home. I devised an instrument with the ordinary waist-band, and secondary band to rest on the hip, with the arm crutches attached to steel rods, which slid up and down, and were fastened with screws, so as to be able to lift the shoulders. When using the instrument I noticed, what I had not done on the previous occasion—namely, that her whole body was twisted, as we see in old cases of ordinary lateral curvature. I did not leave on the support continuously, but advised that she should leave it off and wear it every alternate two hours; when the instrument was off, she was to lie down on face and hands. I also ordered her to carry a jug of water on her head in the morning. I allowed very nourishing diet, and prescribed a mixture of iron and quinine; rubbing with a hard brush along the muscles of the spine, and cold douches were also advised. She rapidly improved, and in a short time (about a month) the deformity was again obliterated.

I think it will be admitted that the above case is a remarkable one, both as regards history, progress, and (were it only to act as a warning to practitioners not to be too hasty in their prognosis of a case of lateral curvature) worthy of publication. That such cases do occur occasionally, and that this is not a solitary exception, I know to be the fact, both from personal experience and from other medical men having told me of cases in their practice. I think it very important that such a case should not be mistaken for either

common lateral curvature, or, worse still, for morbus coxæ. Sir Charles Bell complained some forty years ago of having seen marks of blisters about the shoulders in case of scoliosis. I am afraid he would have been equally shocked at the marks of blisters as I have seen them on the hips.

The disease is essentially one of debility, and requires, in addition to mechanical contrivances, measures calculated to strengthen the general health. The face is generally pale and pinched, the flesh ill-coloured and flabby, while the rapid compression which the spinal cord undergoes causes impaired nutrition, as also the displacement of the viscera, occurring almost suddenly, and not gradually, entails palpitation, dyspnœa, and various disturbances of the digestive organs. Be it remembered too that in the acute affection the disorders of the circulatory, respiratory, and digestive systems are much more distressing and severe than they are in the ordinary disease. This can be easily conceived, and is actually the case.

One symptom due to pressure is worthy of note—viz., hæmoptysis, which is apt sometimes to be rather severe. Now, I have not found it the slightest use to give astringents for such a complication. By curing the deformity you cure the spitting of blood, and no other means that I know of has been of any avail. "Sublatâ causâ tollitur effectus." In this case the proverb is certainly a true one. A word as to the prognosis and I have done. Seeing that the disease is caused by constitutional debility, and not from mechanical causes—as faulty positions, &c.—I think we ought to be careful as to what we say about the recurrence of the disease. All the cases I have seen and heard of were caused more or less by debility—one case by a local manifestation of a peculiarly constitutional diathesis—namely, scrofula, which afterwards appeared in other of its Protean shapes. One of my cases, as I stated, came on after chlorosis; another, in a young girl, after one of the exanthemata. For my part I should be very careful what I said about its recurrence, after seeing it return in Miss M. on her again falling into a state of ill-health. The parents are generally astonished at the suddenness of their daughter's recovery. If we hold out strong hopes of her continuing well, they will surely be the more disappointed if the complaint returns. I have written "daughter," not because my cases happened to be girls, but because I have never seen or heard of the affection in a boy. So far as regards the liability of sex, it coincides with the ordinary disease.

The pain on the inside of the knee can be easily explained (as indeed it beautifully is by Mr. Hilton) by the pressure on the trunk of the obturator causing sympathetic pain, through its cutaneous branch distributed to the inner side of the knee-joint, while the pain over the trochanter can be similarly shown to be caused by its filaments distributed, one to the capsular ligament, another to the ligamentum teres. The presence of pain in these situations in acute lateral curvature, and its absence in ordinary lateral curvature, may, I think, be explained by the sudden pressure to which the nerve is subjected in the former disease, while in the latter the pressure is more gradual—hence the nerve accommodates itself to the lessened space.

TREATMENT OF SCARLET FEVER.

In a discussion on this subject, at the New York Academy of Medicine, (reported in the *N. Y. Med. Record* of August 4), Dr. Thomson said that, "so far as general treatment of scarlet fever was concerned, he, Dr. Thomson, placed first and foremost among the indications the internal use of antiseptics belonging to the chlorine class—his own preference being for the bromine, having formerly employed chlorine. The manner of using the bromine was as follows: Dr. J. Lawrence Smith's solution was employed, consisting first of a saturated solution of bromide of potassium in water, and to ℥ ij. of that ℥ i. of bromine was added very slowly, shaking the bottle constantly while making the combination. It was better to add half of the quantity of bromine first, and then let the bottle stand for an hour or more before the remainder was added. When the bromine was dissolved in that manner, the bottle was to be filled with water until a *four-ounce* mixture was made. The solution thus prepared could be again prepared for administration by combining it with water in any proportion desired. For internal administration ℥ i. of the solution to ℥ i. of water was used, and of that a teaspoonful was given in a tablespoonful of sweetened water, p. r. n. The solution should be kept in a dark place. As a local application, equal parts of the solution and glycerine should be employed, or, in serious cases, the solution should be applied clear. The odour of diphtheria was entirely destroyed by the local application of the bromide solution."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

On Hospital Organisation, with special reference to the Organisation of Hospitals for Children. By CHARLES WEST, M.D., &c. London: Macmillan & Co. 1877.

THIS little work professes chiefly to deal with hospitals for children, and is sold for the benefit of the Children's Hospital in Ormond-street, London. In spite of the limit which the author has placed on his observations, Dr. West's admirable remarks are, with very few exceptions, applicable to all hospitals, whether general or special. We commend the work to all hospital managers, whether medical or lay, believing that they will there find valuable information on all the points dealt with, and, if sufficiently modest to see themselves as others see them, will, no doubt, discover many weak points in their dealings with the inmates of the institutions committed to their care. As Dublin journalists, we hope we may be excused for expressing an opinion that hospital organisation, although much improved of late years, is still far below what it ought to be in our native city, and does not compare favourably with that which prevails in the other great towns of the United Kingdom. We hope our readers will not consider us tedious if we refer at some length to the views put forward by Dr. West.

The author seems rather to approve of autocratic management, and thus writes of the "Treasurers," the autocrats of the great endowed hospitals of London:—

> "The treasurers of these great institutions are now earnest, intelligent, painstaking; each of them administers the funds as carefully as if he were a Chancellor of the Exchequer with a clamorous opposition to satisfy; and to these gentlemen are due many of the most important improvements that have of late years been introduced into hospital management."

The description of the typical chairman and committee of

management elected by the subscribers (or, as in Dublin, practically by themselves) is excellent:—

"The members of such committee seldom bring to the discharge of their duty any special knowledge, and as seldom feel the duty of acquiring it. The chairman is selected from among persons of rank or station on account of the prestige which attaches to his name, or the weight of his character in the commercial world. . . . .

"The shopkeeper comes from behind his counter, or the man of business leaves his office, or the man of leisure saunters from his club, and looks in at the meeting of the committee on his way home. . . Now and then he finds himself indeed intensely puzzled by some recommendation from the medical officers which entails an unlooked-for expenditure of money, or by some complaint against the mismanagement, or by some difference between the officials, &c."

Is not this a correct description of the members of the "boards" of our Dublin hospitals in the majority of instances, except perhaps that in most, instead of "looking in on their way home," they look in on their way out, and hurry on to their offices or shops? "The members of these committees too often undervalue the knowledge they do not possess."

Dr. West illustrates his remarks upon committees of management thus:—

"The directors of one of those large hotels which now abound in London and other great cities, have no knowledge themselves of the details of its management, but they engage a manager whom they believe to be competent, . . . and when appointed, if he knows his business, he follows the same course in the selection of his subordinates. The annual meeting of the shareholders, and the dividend declared, tell whether the choice has been well and wisely made. . . . .

"In the case of the hospital all these precautions are too often looked upon as needless; previous careful training is regarded as unnecessary; the wish to do good is taken as the power of doing it."

The following rule, to which there should be "no exception," is laid down by the author, and printed in capitals:—

"That no one whatever shall be appointed to a post of responsibility in any hospital, from the manager down to the head-nurse in a ward, without satisfactory proof of previous training in the same or in some other similar institution, and in a capacity the same in its nature with that of the office for which he or she is a candidate."

Having laid down this law, Dr. West proceeds to consider the question—"To whom shall the management of the hospital be entrusted?"

Dr. West then shows the difficulty in making the several departments—medical, nursing, and economic—work harmoniously. He considers a superintendent of nurses supreme in her own department as essential, and holds that the housekeeper should be supreme in her department, but in no way superior to the superintendent of nurses, and that both should conform to the requirements of the medical department. The superintendent of nurses, Dr. West considers, is the most important officer in the hospital, and he justly remarks:—

"The tone, too, which she gives to the nurses pervades the whole hospital, and there is no position in the world in which the truly feminine virtues of humility, gentleness, simplicity, and loving kindness have a wider scope, or yield a richer fruit. . . . It is hard to say what she may not be and do if she will but content herself within the sphere of her own duties—a sphere wide enough for the head of a sage and the heart of a saint."

The author considers that a medical committee controlling all medical matters, and a house committee supervising all general affairs, are necessary, and that in the appointment of medical officers the qualifications of the candidates should be considered by these committees jointly, but that, after expressing their opinions, the members of the medical committee should retire, and leave the election entirely in the hands of the lay members of the managing committee. There may be some doubt about the prudence of carrying out this scheme in its entirety, but there cannot be any doubt that the medical staff should not elect to offices on that staff, or *sell* the appointments in the disgraceful manner which still prevails in some Dublin hospitals. The house committee, in Dr. West's opinion, should always contain among its members some members of the acting medical staff of the hospital.

The next question discussed is the much-vexed one of—"Shall the nursing of the sick be placed in the hands of a sisterhood, or shall it be entrusted to lay agents?"

It is quite clear that Dr. West does not give his approval to the entrusting the nursing of hospitals to sisterhoods, as that term is usually employed in these countries. The author shows that in the United Kingdom, as a rule, the employment of a sisterhood in a hospital usually means the handing over of the whole management

to the nursing body. He points out that this condition of things has arisen from a misconception as to the position held by sisters in French and other Continental hospitals. "The whole administration of the hospitals in Paris is essentially secular; the power is vested in a *conseil*, while from the whole of the governing body, and from the whole of the administration, all clerical influence is, rightly or wrongly, carefully excluded." The arrangements between the hospital administration and the nursing community is terminable by a month's notice, and is often so terminated. It is thus apparent that the Protestant sisterhoods or nursing societies of ladies in these countries, who claim pre-eminence in the management of our hospitals, are usurping a power not granted in countries where the large portion of the nursing of the sick has been in the hands of sisterhoods since the days of St. Vincent de Paul. At page 25, in writing of Irish hospitals, Dr. West, on the authority of one whom he terms a "competent judge" in Dublin, draws a comparison between the working of Jervis-street Hospital with a large lay element, and that of the Mater Misericordiæ and St. Vincent's under the control of sisterhoods. This comparison is stated to be unfavourable to the latter institution. We do not care to discuss the relative merits of the management of Dublin hospitals, but we must express a decided opinion that a comparison between the management of Jervis-street and of the Mater Misericordiæ is by no means unfavourable to the latter institution. We think that to speak of the Mater Misericordiæ as "reasonably enough administered and governed," is rather deprecatory of the efforts at management in that institution, which, although it *may* have faults, may well serve as a useful model for many Irish hospitals. Dr. West considers in detail the origin of the Protestant sisterhoods, and points out how "the religious vocation is put first as constituting fitness for the work," and the technical put second, and that the nursing vocation is only a means to the end of supporting the religious vocation. This is not as it should be, as pointed out in a pamphlet published by Dr. Runge, which the author quotes:—"Catholic or Protestant, human nature and human frailties are the same, and piety the most sincere does not render less true than in Chaucer's time the answer of the Knight when called upon to

> "'Tell in audience
> What thing that worldly women loven best.
> My liege lady, generally, quod he,
> Women desiren to have soverainetee.'"

The author concludes this part of his subject by considering the relative value of "sister" nurses and paid nurses, and if sisters be employed, should they occupy a different position from that which is assigned to them in other countries? After due consideration he considers paid nurses the best, and that if sisters be employed, they should not occupy a position different from that which they occupy on the Continent. He quite disapproves of having two classes of nurses in a hospital—namely, those who are and those who are not ladies. It is also pointed out that volunteer nurses are competing with persons who might earn a livelihood in an honourable way, and that volunteer competition is not fair. In many instances it would seem that ladies enter the service of the sick poor from mistaken ideas, or even for the sake of personal glory, without being in any way fitted for the service. Dr. West says:—

"And those who best know the poor will probably say—teach, train, elevate the nurse as best you can, but still the truest sympathy, the most practised skill in nursing the poor, will be found among the poor themselves. Make the occupation an honourable one; take from it anything which would deter the gentlewoman from bearing part in it if drawn by necessity to earn her bread, or if impelled by love of others to take a share for a time in humble duties; but do not foster the delusion that those are best fitted for the work, or will do most good in it, who find or fancy that there is no scope for 'doing their duty in that state of life to which it hath pleased God to call them;' who think they serve Him best by leaving the position He placed them in, and trading, not with the talent with which He entrusted them, but with some other for which it took their fancy to exchange it."

The idea of ladies becoming head-nurses at once, without training in the minor offices, is distinctly condemned, and it is proved that hospitals worked by lady-nurses are more expensively managed than those worked by ordinary paid nurses.

The second part of the work is more closely devoted to the consideration of children's hospitals. The ages of patients, details of nursing, regulation of linen, &c., are all considered and dealt with in accordance with the *principles* we have indicated as approved of by the author. Space does not permit us to consider these details, and we now conclude with an earnest request that hospital managers and committee members will take a little trouble to learn their duties, and also remind our professional brethren that but few of them have given any systematic study to the all-

important details of hospital management. It is as much the duty of the hospital physician or surgeon to study hospital administration, as it is to study the drugs he prescribes, or the apparatus he employs.

Clinical Lectures on the Curability of Attacks of Tubercular Peritonitis and Acute Phthisis (Galloping Consumption). By Dr. M'Call Anderson. Glasgow: James Maclehose. 1877. 8vo. Pp. 56.

The Professor of Clinical Medicine in the University of Glasgow publishes these two lectures with a view of showing that tubercular affections of the peritoneum and lungs, despite their generally supposed incurability, sometimes respond to treatment in a most satisfactory manner. This we are not prepared to deny, but it is to be feared that such fortunate cases are the exception, not the rule.

While we do not question the accuracy of Dr. Anderson's diagnosis in most of the cases quoted by him in support of the doctrine advocated in these lectures, we must say that in some instances the resemblance of the symptoms to those of the continued fevers renders the diagnosis a matter of much difficulty. Thus in the lecture on "Tubercular Peritonitis," a brother and sister—belonging to one of the most unhealthy families the author had ever encountered—are represented as recovering from this disease. The brother, a lad aged twelve years, fell sick "on the 1st January, with fever after exposure to cold; pain and fulness in the hypogastric region, and tympanitic distension of the abdomen." His illness "was accompanied by high temperature, great emaciation, diarrhœa, occasional vomiting, but without effusion into the peritoneal cavity; and during the progress of the attack, which lasted about five weeks in all, a large abscess formed in the neck, and discharged about a cupful of pus. . . . No sooner was he convalescent than his youngest sister, aged eight, was seized with similar symptoms—fever (pulse 120, temperature 101·2°), sickness, tenderness and fulness to the right of the umbilicus, pain so severe that she often screamed out, and diarrhœa, the motions being of a pale yellow colour." In ten days she was convalescent, and Dr. Anderson exclaims—"Here, then, is another *undoubted* case of localised peritonitis, *probably* of tubercular nature." To our mind the

differential diagnosis between these cases and enteric fever is "not proven."

Again, in the lecture on "Acute Phthisis," Cases I. and II., as recorded, are remarkably like typhoid and typhus respectively, complicated with severe pulmonary secondary affections, such as are common in November, the month in which both patients were ill. However, although a question may arise as to the accuracy of the diagnosis in some of the cases reported, we are bound to express our approbation of the treatment pursued by the author; and, if it were only as a contribution to therapeutics, we can heartily commend these lectures to the attention of the practical physician. But they likewise contain many accurately recorded clinical histories which leave no doubt that the author has successfully grappled with one of the most obstinate of maladies—acute tuberculosis, affecting in some instances the lungs, in others the abdominal organs.

Lectures on Surgical Pathology and Therapeutics. By DR. THEODOR BILLROTH. Translated from the Eighth Edition. Vol. I. Pp. 438. Published by the New Sydenham Society. London: 1877.

A NEW translation of Billroth's Lectures has been undertaken by the Sydenham Society, and so far the Society may be congratulated on having made a valuable addition to their list of publications. The translator has succeeded in rendering it idiomatically English in style; there is a freshness and ease which English readers so seldom find in the reproduction of a foreign author. This is the more to be desired as Billroth is eminently a conversational lecturer, whose views will be read and remembered where a more dry and severe style would be treated with the cold dignity of a work of reference.

In the introduction there is a brief historical sketch of surgery from the legends of Æsculapius down to the present time. More valuable is the account given of the methods of study pursued in the German Universities, which the author strongly approves of. He advises the student not to begin the study of surgery before the fifth half-year's session, and he deprecates the larger universities at the beginning of clinical study. England is recommended to the young diplomate as the best foreign country to visit for the purpose of enlarging his knowledge. "From the time of Hunter to the

present," he writes, "English surgery has had something of grandeur and style about it." With empiricism he has no sympathy whatever. "If a physician or any one else parade his experience or observations before you, just notice what kind of intellect is possessed by the narrator." He does not ask from the young practitioner a perfect theoretical knowledge of medicine in its entirety, but an intelligent acquaintance with the fundamental principles of the scientific investigation of pathological processes. And it is with the object of facilitating such an acquaintance that he has published the present lectures.

The first chapter treats of simple incised wounds of the soft parts, including hæmorrhage, its treatment, and the healing of injured parts. He distinguishes parenchymatous hæmorrhage from mere bleeding of the capillaries, and he points out its frequence as a secondary occurrence. Of styptics he believes turpentine to be the most useful, and he details some personal experiences of its value; he thinks it acts by causing an irritation which brings about a peculiarly energetic contraction of the divided orifices of the vessels. His views of Lister's treatment are very much in accord with those of the chief English surgeons. In his eyes Lister has the especial merit of having shown that all wound secretions are to be let out by inserting a number of drainage tubes into the wound, which are to be cut short on a level with its surface. Billroth, like Lister, believes that it is almost always a process of putrefaction in the wound itself which gives rise to dangerous and constitutional complications; but while Lister adopts Pasteur's opinion, and holds that putrefaction can only be set going through the influence of minute vegetable organisms derived *ab externo*, the Vienna professor considers that the putrefaction of the injured and gangrenous tissues and of wound secretions (a special decomposition of albuminoid bodies with the formation of pyrogenous and phlogogenous matters) is a chemical process necessarily resulting under certain circumstances in these tissues, and without the co-operation of any new agencies. It is in the technical details, the great cleanliness enforced during operations, and the systematic rules laid down as to dressings, that Lister's method is most useful, and it is recommended as very practical, though many of the more recent modifications of it are attended with equally good results. The pathology of healing and cicatrisation is given with fulness and simplicity, and it forms, along with an account of new bone development in a subsequent chapter, perhaps the most valuable portion of the work.

After contused and lacerated wounds of the soft parts, fractures of bone, simple and open, are treated of. The lecture on Gun-shot Wounds is rather meagre, and might have been left to the domain of special surgery, which this work is not intended to embrace, but the succeeding chapters on Burns, Gangrene, and Phlegmonous Inflammation supply admirable instances of the value of scientific investigation as suggesting and guiding practical procedure. We regret we cannot express as high an opinion of the woodcuts as of the text; they are somewhat coarse in execution, and not a few resemble diagrammatic outlines rather than realities seen under the microscope. For attractive simplicity of style, and for the value of the information conveyed, there is nothing left to be desired, and the student of surgery will have himself to blame if he neglects so readable and so philosophical a guide.

UNITED STATES ARMY MEDICAL REPORTS.

1. *Circular No.* 9. *Issued by the War Department, Surgeon-General's Office, Washington, March* 1, 1877. *A Report to the Surgeon-General of the United States Army by* Assistant-Surgeon George A. Otis, *on the Transport of Sick and Wounded Men by Pack Animals.* Large 4to, pp. 32. Washington: Government Printing Office. 1877.

2. *International Exhibition of* 1876. *Representation of the Medical Department, U.S.A. Six Descriptive Pamphlets.* Philadelphia. 1876.

During the contest with Indian tribes, in which the troops of the United States army have been engaged for several years past, the subject of the transport of the sick and wounded in localities inaccessible to wheeled vehicles has naturally attracted much attention. Various descriptions of the devices employed by the medical and other officers of the army having been forwarded to the office of the Surgeon-General, Dr. Otis was deputed to collect and arrange these documents. He has succeeded in accomplishing his task in a most satisfactory manner, and in a way which cannot fail to be of use, not only to the medical officers of the U.S. army, for whose information the Report is published, but also to those of every other nation.

The Report opens with an interesting historical account of the different methods practised for the conveyance of disabled men.

Dr. Otis acknowledges the value and importance of mule-litters and cacolets, but states that the attempt to introduce such a system of sick-transport into the American army has absolutely failed. "Experience has also demonstrated," he says, "that in our (the U.S.) army some other mode of transport than by hand-litters and wheel-vehicles is imperatively necessary."

From the opinions expressed in the different reports, given as the result of practical experience of the medical officers taking part in the Indian Expeditions, it would seem that the native Indian litter or "travois" (syn.:—travail, travée) is the most suitable for the peculiar exigencies of warfare in which their men were engaged. The "travois" consists of two poles or saplings about four inches in diameter and eighteen feet long, with two stretcher bars, and a canvas or raw hide bottom. The rear ends of the side poles rest on the ground, acting as runners, and it is drawn by one mule. It can be very quickly constructed, is stated to be much more comfortable to the wounded than might be anticipated, and is economical as regards attendants and animals. The Indian litter proper is also highly recommended by some officers. It resembles an ordinary stretcher, mules or horses taking the place of bearers. One animal is harnessed between the poles before and the other between the poles behind.

The Report is illustrated by fifty wood engravings, and is a most valuable and suggestive contribution on a most important subject.

Those of our readers who were fortunate enough to have paid a visit to the Philadelphia International Exhibition last year, will doubtless remember the Regulation U.S. Army Medical Post Hospital erected in the Exhibition grounds. In this building various models of hospitals, hospital steam vessels, hospital railway cars, ambulances, &c., as well as articles of hospital equipment, medicines, specimens, litters and stretchers, and the official publications of the Surgeon-General's office, were exhibited; the whole being under the supervision of Surgeon J. J. Woodward, U.S. army. This officer, who is so well and favourably known in the United Kingdom as the author of the medical volume of the "Medical and Surgical History of the Civil War," and for his most perfect photo-micrographs, and whose labours, in addition to those of his immediate colleagues, Dr. Billings and Dr. Otis, have acquired a international value far above their inestimable depart-

mental worth, has drawn up a series of pamphlets in explanation of several of the models, &c., exhibited, for the receipt of which we beg to express our acknowledgments.

Pamphlet No. 1 is an address delivered by Surgeon Woodward to the International Medical Congress, giving a most interesting account of the scientific work doing and done by the medical department of the U.S. army. Dr. Woodward shows very conclusively the importance and character of the work, not only to the State, but to science and humanity at large, which the U.S. Army Medical Department is engaged in. Of this work it is truthfully said that "enough has already been published to enable the medical profession throughout the world to form a judgment as to its character, and as to the fitness of the medical officers to whom it has been entrusted to accomplish the task which they have undertaken." Any one who has seen the published volumes of the "Medical and Surgical History of the War of the Rebellion" will have some faint appreciation of the labour which must have been gone through in analysing and consolidating the enormous mass of materials on which these magnificent works are based. Nor can we speak too highly of the numerous other monographs and reports which have been published from the Surgeon-General's Office, or of the energy which has formed one of the greatest medical libraries of the world, and what will probably be one of the most valuable national medical museums.

Pamphlets Nos. 2, 3, and 4 contain, respectively, fully illustrated descriptions and plans of the hospital railway cars, the hospitals and barrack hospitals, and the hospital steam vessels, which were in use during the war of the Rebellion (1861–5). The 24-bed hospital, as erected on the Exhibition grounds, was adopted by U.S. War Department in 1871 for the military posts scattered over the vast extent of the American territory in time of peace, as the unit of their hospital system. It consists of a central administration building, two storeys high, with a one-storied back building for the kitchen, and two one-storied wings as wards, with a veranda surrounding the building.

Pamphlet 5 is a description of Perot and Co.'s improved medicine wagon, which has been used with great comfort and success by the United States army. It is light and strong; is not liable to upset, and the mode of packing appears to be very perfect. Pamphlet No. 6 is a description of the new U.S. army medical transport cart for field medical and hospital supplies, such as might

be required in emergencies by small bodies of troops, especially when engaged in mountainous regions. This is a one-horse, two-wheeled cart, the total weight of which, when loaded and with driver, is estimated at 1,220 pounds. It has not yet, as far as we know, been tested in actual service, but from the reported results of preliminary trials it would seem to fulfil every requisite, and should, we think, prove an important addition to army field equipment, especially in such expeditions as those in which the United States army has recently taken part against the Sioux Indians The three chests which the cart carries contain surgical instruments and appliances, mess furniture and utensils, and a supply of medicines, medical comforts, &c., adequate for a force of not less than 500 troops for a period of three months.

DISEASES OF THE RECTUM.

1. *The Surgery of the Rectum.* By Henry Smith, F.R.C.S. Fourth Edition. Pp. 201. London: J. & A. Churchill.
2. *Observations on the Diseases of the Rectum.* By T. B. Curling, F.R.S. Fourth Edition. Pp. 244. London: J. & A. Churchill.

That these two works have entered upon a fourth edition is a strong testimony to the high estimate which has been placed upon them by the profession. We have already considered their contents at length in reviews of the previous editions, and there is little to be added to what has been said regarding them. The first consists of the Lettsomian lectures for 1865, and although the colloquial manner is often pleasing, we can hardly say this of the clumsiness which too often obtrudes itself upon the reader in the pages of Mr. Smith's book. Nevertheless, there is a great deal of practical information, forcibly if inelegantly, given. Mr. Smith's name has become associated with the excision of internal piles, and the use of the clamp. But in this procedure it is well to remember that he only followed an example which had already been set by a distinguished Dublin surgeon. The conflict has long raged between ligature and excision followed by the cautery, but it is pretty certain that surgeons will remain divided upon the subject. There are risks and disadvantages attending each procedure, and these will always affect various minds differently. Mr. Smith thinks that nothing has yet been devised to equal the clamp and cautery, and insists upon the "almost absolute safety of the operation

itself, although in two instances death followed it." This is his judgment, after he has "operated between two and three hundred times in every kind of case, and in some of the utmost severity, and of enormous size, and at all ages, from the beginning of manhood to its very extreme." Here is an experience which ought to be borne in mind:—

"I must say one word about the possible occurrence of contraction after this operation. I stated in an earlier edition that I had not met with an instance, but since that was written I have met with three instances where contraction occurred, requiring the use of bougies; but this circumstance was owing to my having taken away too much of the external skin. At one time I dealt pretty liberally with the external skin where this was redundant, but it is my custom now to interfere as little as possible with this, except, of course, where there are extensive folds and indurated masses; even then I only remove the superficial portions, for sufficient absorption of the parts will in course of time take place so as to prevent annoyance."

MR. CURLING'S book is also well known. It is a treatise of very great merit, and deserves all the success it has attained. We are surprised, however, that so serious a blunder as the following escaped the author's eye. Speaking of fistula, he says:—"When there is no external opening the complaint is named *blind external fistula.*" The perplexity of any student who happens to read this will be pitiable. The definition is already most puzzling to the juniors, and to have this further element of confusion thrown in by so high an authority will add much to the student's troubles. The words should be either "no *in*ternal" or "*an* external." In the twenty-two chapters of which the book consists, all the affections of the rectum are treated with sufficient detail. The observations upon stricture, and the cases which are given, are specially interesting, and show in how large a degree operative surgery may be availed of to alleviate, if not to cure, that most distressing condition.

Illustrations of Clinical Surgery. By JONATHAN HUTCHINSON, F.R.C.S. Fasciculus VIII. London: J. & A. Churchill.

MR. HUTCHINSON devotes the eighth number of his work on Clinical Surgery to various fractures of the skull. One variety he designates "scratch-fracture," and illustrates by a case in which a shallow furrow was ploughed into the bone extending forwards

from the termination of the sagittal suture. There were no symptoms, and the wound granulated well; but on the 14th day a rigor occurred, and death from pyæmia followed. There was no fracture of the internal table. The bone and the dura mater had inflamed, and there was a thrombus in the superior longitudinal sinus.

In two cases of compound fracture with depression, in which the trephine was used, Mr. Hutchinson draws particular attention to the fact that he did not cut through the whole thickness of the bone. The trephine was not allowed to go deeper than the diploe, and the elevator was then successfully used in raising the depressed portion. Both patients made an uninterrupted recovery.

There are ample clinical notes of several cases, and the accompanying illustrations are full of value.

Sea-air and Sea-bathing; their Influence on Health. A Practical Guide for the use of Visitors at the Sea-side. By Charles Parsons, M.D., Edin.; Hon. Surgeon to the Dover Convalescent Homes, &c., &c. London: J. & A. Churchill. 1877.

No medical man who has been at a sea-side summer resort can have failed to notice the foolish and indiscriminate manner in which the majority of the visitors bathe. This, doubtless, in a great measure arises from ignorance and want of any trustworthy information as to what should or should not be done in general or particular cases. Dr. Parsons's little book is one of the Messrs. Churchill's series of Popular Medical Works, and is a thoroughly practical and trustworthy guide to health at the sea-side. It gives, in untechnical language, an admirable account of the effects of sea-baths and sea-air upon the system, and lays down simple, yet most important, rules and directions, which should be followed by all actual or would-be bathers whether in health or in search of it.

With the exception of the well-known beneficial effect of sea-air and baths in cases of scrofula and rickets, the local and general special effect of sea-water, as a remedial agent in many other diseases, has not, we think, attracted the attention it deserves. We are glad to observe, therefore, that Dr. Parsons shows the use, mode of application, and value of warm sea-baths, and such minor ablutions as the dripping-sheet, spinal bath, douche, &c., in cases in which open sea-bathing would be out of the question or unsuitable. We can cordially recommend this "shilling's worth" as a most useful companion at the sea-side.

PART III.

HALF-YEARLY REPORTS.

REPORT ON

MATERIA MEDICA AND THERAPEUTICS.[a]

By Walter G. Smith, M.D., Dublin; F.K.Q.C.P.I.; Assistant-Physician to the Adelaide Hospital; Examiner in Materia Medica and Botany, Pharmaceutical Society, Ireland.

Art. 6. Caoutchouc in Skin Diseases.
„ 8. Chloral.
„ 1. Cholagogues.
„ 9. Electro-therapeutics.
„ 2. Morphia.
„ 4. Phosphorus, administration of.
„ 5. Quinine, toxic action of.
„ 7. Quinine and Cinchonidine.
„ 3. Strychnia in Ophthalmic Therapeutics.

1. *Cholagogues.*—From a critical review by Dr. Labbé of the experiments instituted by different observers, it is concluded that podophyllin, rhubarb, aloes, and colchicum are the only cathartics which exert a palpably stimulant action upon the hepatic secretion. These drugs are really powerful cholagogues. As to their mode of action, we know that gastro-intestinal irritations, far from quickening the flow of bile, often hinder it; and further, that the cholagogue action is less marked in proportion as the cathartic action is more pronounced. By exclusion, Rutherford and Vignal are led to the conclusion that rhubarb, colchicum, and podophyllin directly stimulate biliary secretion. Comparing the experiments of Rutherford

[a] The author of this Report, desirous that no contribution to the subjects of Materia Medica and Therapeutics should remain unnoticed, will be glad to receive any publications which treat of them. If sent to the correspondents of the Journal they will be forwarded.

and Vignal with those of Röhrig and Hughes Bennett, we may arrange the vegetable cholagogues as follows:—

Röhrig.	Rutherford and Vignal.
Colocynth.	Podophyllin.
Jalap.	Rhubarb.
Aloes.	Aloes.
Senna.	Colchicum.
Rhubarb.	Senna.

Hughes Bennett, as is well known, refused to allow any cholagogue power to podophyllin, calomel, or corrosive sublimate.—(*Revue de Thér. Méd.-Chir.*, No. 2, 1877, from *Journ. de Thér.*)

2. *Morphia, action of: Chronic Morphinism.*—By the methods of hypodermic and intravenous injection, Dr. Calvet has studied, in the lower animals, the immediate effects of morphia as well as the results produced by the prolonged administration of the alkaloid. The animals were submitted to a course of morphia for several months. The most striking result of this *régime* was a serious disturbance of nutrition evidenced by emaciation and rapid loss of weight. In addition to these phenomena, due to the chronic action of the morphia, the usual acute effects were exhibited after each injection, although in a less degree than would be observed in a virgin subject. Torpor, a peculiar attitude of the animal, hyperæsthesia, and exaggeration of reflex phenomena were clearly marked. Examination of the fundus oculi showed that the papilla was very anæmic, at least in the arterial vessels, while the venous system appeared to be much congested. Death finally supervened as the result of marasmus, and was attended with violent convulsions. Looking to clinical records, Dr. Calvet finds that all the accidents which he has produced experimentally in relation to the respiratory and circulatory systems and the nervous centres, have been observed from time to time in the practice of medicine.—(*Journ. des Connaiss. Médic.*, 15 Mars, 1877.) [The practical bearing of these observations is evident, and we may refer our readers to the *Reports*, Feb. and Aug., 1871, for some notice of the views of Drs. Anstie, Clifford Allbutt, and Oliver, as to the danger of setting up a "morphia habit." More recently Drs. Levinstein and Leidesdorf have drawn attention to this important subject, and have contributed some instructive cases.—*Lond. Med. Rec.*, 1876, pp. 55 and 516.—*Rep.*]

3. *Strychnia in Ophthalmic Therapeutics.*—The recent observations of Nagel have assigned an important place to the use of strychnia in different forms of amblyopia, and M. Haltenhof now records the results of his own experience, which are deserving of attention. He commenced with injections of half a milligram (·007 gr.), and afterwards increased the dose up to four or five milligrams (·06—·075 gr.). Strychnia acts not only in simple functional disorders, but even in cases of more or less serious organic lesions it will improve the visual faculty.

In *atrophy of the optic nerve*, Haltenhof obtained only once in fourteen cases a temporary amelioration after five injections. The author submitted to injection of strychnia five patients labouring under the form of amblyopia associated with central scotomata. In all of these central acuteness was increased; in four of them normal fixation was re-established, and the perception of colour improved.

In *pigmentary retinitis* the results surpassed the expectations of the author. In four of the five cases increase of acuteness of vision was noted, and in two, an enlargement of the visual field for white light. But strychnia triumphs especially in those forms of amblyopia, unattended with serious lesions, whether connected with anæmia, reflex trigeminal irritation, paralysis of the cervical sympathetic, or with the abuse of alcohol and tobacco. In paralysis of the orbital muscles, strychnia is inferior to electricity, but it merits trial in cases of accommodative asthenopia.—(*Revue de Thér. Méd.-Chir.*, 1er Janv., 1877.)

4. *Administration of Phosphorus.*—Dr. E. R. Squibb, in a Reprint from Proceedings of the American Pharmaceutical Association for 1876, contributes some valuable practical information on this point, which we reproduce in abstract:—

It must now be admitted that phosphorus, in its separate and elementary condition, produces effects upon the animal economy which are not only different in degree, but also different in kind from the effects of phosphoric acid or any oxides of phosphorus. If the evidence for this statement does not yet amount to a demonstration, it is still entirely sufficient to justify the admission, and much too strong to be disregarded.

Phosphorus should be used with great caution, but not with timidity, and those who are afraid of it should let it alone rather than add to the large stock of so-called experience which has

accumulated from imperfectly observed phenomena in its timid and unskilful application. It is dangerous only in the sense that all potent agencies are dangerous, because power to do good involves necessarily the same power for harm. The important peculiarity in regard to phosphorus, however, is that its poisonous effects from medicinal doses are remote, slow, and insidious; and when allowed to go to an extent which does not appear very grave, the condition is irremediable. It is, except in small doses, cumulative in its action; and as for some uses it is given in increasing quantities, it should be suspended for a few days at the end of ten or twelve days, and then be resumed in smaller dose and increased as at first with the same watchful care. At the very first appearance of the slightest gastric derangement, such as gastralgia, vomiting or diarrhœa, it should be suspended, and be either abandoned, or resumed in smaller doses with increased watchfulness. The necessity for care is in proportion to the dose. From $\frac{1}{100}$th to $\frac{1}{40}$th of a grain three or four times in the twenty-four hours may be given for weeks and months even, without any extraordinary care; and although such are the doses most frequently required and used, they are not large enough for some of its uses. Doses as large as $\frac{1}{8}$th of a grain have often been reached, but $\frac{1}{12}$th is considered to be about the largest safe dose, whilst $\frac{1}{20}$th to $\frac{1}{30}$th of a grain need rarely be exceeded in the most active treatment to which phosphorus is applicable. These doses apply to the substance when in solution in cod-liver oil, where it is in its most effective and most uniform condition for use. When used in the solid form, however finely divided, or however combined, much larger doses are generally tolerated, but explosion in the effects is much more liable.

From all that has been written upon the subject it seems to be pretty well established that phosphorus should only be given in solution, and that the solution used should be bland and not volatile, and should be capable of protecting the substance from oxidation for a reasonable length of time, when kept from light and air. Such a solvent has been found in cod-liver oil, and the testimony in regard to the solution in cod-liver oil is, up to this time, so favourable, as to indicate that all other preparations should be abandoned. It is the object of Dr. Squibb's paper to show that a definite uniform solution of phosphorus in cod-liver oil may be easily made and easily managed, so as to offer conditions for accurate administration and accurate observation. Dr. Squibb prepares a 1 per cent. solution of well-dried phosphorus in cod-liver oil, but for the

manifold precautions to be observed in manipulation we must refer to the original. This solution of phosphorus has the sensible properties of the cod-liver oil from which it is made, except that a slight odour of phosphorus is superadded, and the oil should be as limpid and as bland as possible, and must be entirely free from rancidity. When exposed to the air it emits white vapour in small amount, and becomes covered with a dark brown pellicle, which protects the oil below it from rapid change. No part of the pellicle should ever be dispensed, nor should the last half drachm of the vial be used. The dose should be calculated always by weight. Each minim weighs 0·88 gr., and, therefore, represents 0·0088 gr. of phosphorus.

For the administration of small doses of this metalloid, the phosphorised oil may be further definitely diluted with cod-liver oil, or diffused in a cod-liver oil emulsion, or prescribed in capsules.

5. *Quinine, Toxic Action of.*—Some years ago Dr. Denig, an American physician, prescribed quinine for a child seven years of age. In the evening the child was covered with a scarlatiniform eruption, attended with smart itching, fever, and general disturbance, all of which symptoms rapidly subsided upon the quinine being stopped. Two years afterwards the boy took fever, and quinine was again prescribed. Within twenty minutes the same disturbances supervened more violently—intense erythema, itching, swelling of the face, and alarming dyspnœa. In the course of the same year the child was attended by another physician, who, contrary to the parents' wishes, prescribed quinine, and was much alarmed by the symptoms which again recurred.—(*Journ. de Méd. et de Chir.*, Juin, 1877). [For reference to eight other cases of an analogous nature, see *Reports* for 1870, 1871, and March, 1877.]

6. *Caoutchouc in the Treatment of Diseases of the Skin.*—M. Besnier attaches much importance in his practice to the employment of caoutchouc coverings in certain diseases of the skin, especially eczema and impetigo. In fact, treatment is so simplified by this means that it is almost impossible to speak too highly of it. According to the part affected, the form of the application is varied. For the scalp, a plain caoutchouc cap is employed; for the face, the vulcanised cloth or caoutchouc is cut, so as to make a mask fitting accurately the features, with holes for the eyes and mouth, and fixed behind the head by tapes. These masks should be carefully

made, and the different pieces sewn together and arranged so as to insure close contact with the face. On the body or limbs, if the eczema do not occupy a large surface, a simple piece of vulcanised cloth, completely enveloping the diseased part, is fixed by bandages. If the diseased area be very extensive—*e.g.*, over the two lower extremities, or the trunk and arms, the patient must be provided with a pair of drawers or a waistcoat of caoutchouc, carefully applied and tied with strings. When thus used, the caoutchouc produces no irritation or other inconvenience. At first the perspiration which forms beneath it is very abundant; the parts are macerated and rendered pliant by the moist atmosphere in which they are maintained. After a little time the crusts are detached, and it frequently happens that a cure is obtained more quickly by this than by any other means. The only precaution to be observed is to wash thoroughly the caoutchouc dressing every day; and, if the sweating be extremely copious, it will be necessary to change the dressing in the course of the day. But in proportion as matters improve the sweating decreases, and the cure is known to be complete when no moisture is to be observed upon the caoutchouc after removal.—(*Journ. de Méd. et de Chir.*, Mars, 1877.)

7. *Quinine and Cinchonidine.*—The distinguished quinologist, Mr. Weddell, invites attention to the advantage of replacing quinine by cinchonidine in the treatment of intermittent fevers, especially in relation to the difference of price which exists between the two alkaloids.

Notwithstanding the precautions which have been taken towards keeping up and extending the cultivation of cinchona trees, we are compelled to acknowledge that the demands for quinine are outstripping the resources for its supply. We know that some species of cinchona do not contain a trace of quinine, and that others do not include enough of this alkaloid to recompense the trouble of extracting it. Impressed with the importance of the question, the Indian Government have, since 1866, nominated several commissions with the special object of submitting to rigorous proof the therapeutic value of the various alkaloids, and the main conclusion which the members of the Madras commission derived from the data before them was that the alkaloids (cinchonine, cinchonidine, and quinidine) hitherto but little valued in medicine were scarcely, if at all, inferior, as therapeutical agents, to quinine.—(*Cf. Report*, Feb., 1874.)

Now, the trees which furnish the largest proportion of cinchonidine still exist in vast numbers in the American forests, and the most hardy species of the plantations in the E. Indies—viz., cinchona succirubra—is likewise rich in cinchonidine, from which it appears that we may count on an almost unlimited supply of this alkaloid. It is within the observation of several physicians that cinchonidine is sometimes tolerated by the stomach better than quinine, and a number of cases of intermittent fever could be cited which had been ineffectually treated by quinine, and in which immediate improvement was produced by sulphate of cinchonidine. In these cases the non-success of quinine was doubtless due to intolerance of the stomach. From the mass of experience now at hand it may be inferred—(1) That the prejudices of many physicians against the employment of cinchona alkaloids, other than quinine, have no real foundation; and (2) that, in an economic point of view, there would be an incontestable advantage in employing cinchonine and cinchonidine in most of the cases in which quinine alone has hitherto been used.—(*Rép. de Pharm.*, No. 4, 1877.)

8. *Chloral*—(*a*) *Administration.*—The following observations by the distinguished introducer of chloral are of such practical moment that we do not hesitate to transcribe them. After some remarks on impurities in general, Dr. Liebreich goes on to say:—

I have good reason to believe that a large proportion of the chloral, both solid and liquid, which is at present employed in medicine, is not trustworthy in respect to its purity. I am, moreover, well assured—and I wish to draw the attention of practitioners to this point—that many of the impurities of chloral, when it is not prepared with great strictness and tested with scrupulous accuracy, are of a kind seriously to detract from its uniformity of effect.

Such impurities are calculated to have both a directly and indirectly mischievous effect—directly, because some of these impurities contravene the simply hypnotic and anæsthetic powers of chloral, and confer upon the so-called chloral with which they are mixed irritating and exciting properties; indirectly, because by rendering the chloral in certain cases feebly hypnotic, they render the practitioner or the patient uncertain of the proper dose; they lead to multiplication of doses, and, in consequence, they tend to produce fatal results. The comparative inertness of the first

doses leads to the repetition of the dose at too frequent intervals, until suddenly a fatal result is produced. The accidents which have occurred frequently in England are, I am satisfied, largely due to the impurities and uncertainty of the many preparations, and especially of many of the solutions in vogue. A study of the nature of these impurities is therefore just now imperatively called for.

Without entering on the history of chloral, we may remind ourselves that it was first discovered by Liebig in 1830, ... and that the product was always a cake chloral, with very numerous impurities. *It is altogether impossible to purify this cake chloral.* It is, however, now known by what process to produce clearly crystallised chloral in dry transparent crystals which are free from the impurities, these being held in solution in the mother-liquor; such crystals alone are reliable. Crystals of chloral hydrate which are not dry and transparent, are not at all trustworthy.

In one of the most recent and justly reputed treatises of materia medica, published in England, I find the characters of chloral described thus:—"In colourless crystals (needles or acute rhomboidal plates)." I must, however, observe that *chloral hydrate in needles is quite unworthy of the confidence of the practitioner.* It may very well be, and is very likely to be, another chlorated substance, or very impure chloral hydrate. In America especially these impure forms of chloral hydrate are largely in favour, and everywhere there is a tendency to employ them where the consideration of relative cheapness in wholesale quantities is an element in the decision, and where the dangers of even apparently slight impurity in chloral hydrate are not adequately recognised.

The chloral hydrate which is not perfectly pure may sometimes be observed to become more acid. This increase of acidity is not due to the decomposition of the chloral hydrate itself, but to the decomposition of an accompanying impurity (chloro-carbonic acid), which sets free hydrochloric acid. When this occurs in the stomach it gives rise to great irritation, and I believe that when it occurs in the blood it causes great constitutional excitement. Hydrochloric acid is not in itself dangerous, but in these cases it is the indication of the existing impurities which give rise to hydrochloric acid by their decomposition, and which are, as clinical experience proves, in themselves irritating and dangerous. Thus, if a physician make the experiment of giving a dose of pure chloral hydrate with a little hydrochloric acid, and of giving a dose of the

impure chloral hydrate which produces hydrochloric acid by decomposition, as I have mentioned, he will find a great difference; in the first case he will get the true hypnotic results of chloral hydrate; in the latter he will find symptoms of cerebral excitement and nervous irritation.

A more intense, and often a very different, effect is produced when a toxic substance is produced by decomposition within the blood, and in direct contact with the tissues of the organism.

The observations of Dr. Russell on the excessive alkalinity of the blood in typhus fever have an extremely interesting chemical relation to the clinically observed fact that chloral hydrate is extraordinarily potent in its effects in that disease, and must be administered only in very small doses during the stages of excitement and delirium in the disease—its effect in such doses, however, being the more useful that opium is contra-indicated. Ten grains of chloral hydrate will often suffice to produce hypnotic effects, while in the stage of excitement of *delirium tremens* one or two drachms are necessary.

On the other hand, I have seen cases of uric arthritis in which chloral hydrate in high doses produced great excitement without giving sleep. After a full course of alkalies the effect became very different—ordinary doses of chloral producing sleep without excitement. This is in accordance with the general law, which is now well established and tried. I have often had occasion to insist that the best effects of chloral are developed only in a normally alkaline state of the blood; that its effects are heightened when the blood is excessively alkaline, and are counteracted by the opposite chemical conditions.

It has happened to me more than once that my professional colleagues have brought to my notice cases in which chloral hydrate has produced considerable nervous excitement—the state of excitation combating and, in some cases, overcoming the hypnotic effect. In investigating them I found that the chloral employed was of the impure kind of which I have spoken. On opening the cork irritating fumes arose; it was acid, and contained certainly a good deal of chloral, but with it other compounds which give rise by their decomposition to acid and irritating substances of complex character, which have a very injurious physiological action.

I do not at all consider that all cases of excitement arising from the administration of chloral are necessarily due to impurity of the

chloral: for imperfectly alkaline conditions of the blood may, as I have said, produce such effect, and other causes also. I may mention also a curious effect of pure chloral which I have observed in several cases. It sometimes happens that if a person who has taken chloral takes alcohol at a subsequent repast, the superficial vessels become dilated, and there is great flushing of the face, as though an excessive amount of alcohol had been taken. I cannot explain this vascular dilatation; but in such cases it may be necessary for the patient to discontinue either the alcohol or the chloral.

Dr. Liebreich would, therefore, altogether prohibit the use of chloral, either in solution or otherwise, which is not of the utmost purity. There is no practical means by which the purity of chloral in solutions can be ascertained, and the best authorities state that a very large proportion of the solutions current in medical and pharmaceutical practice are of an impure, untrustworthy character, and therefore liable to produce dangerous results. To produce the best effects of chloral, it should not be given on an empty stomach. It is not necessary that a full meal should have been taken, but it is desirable that some light nourishment, or a biscuit, or something of the sort, should be eaten before the dose of chloral is administered.—(*Chemist and Druggist*, abstracted from *Practitioner*, June, 1877.)

(*b.*) *Chloral and Fats.*—A writer in the *Med. and Surg. Rep.* states that it is often overlooked, if not entirely unknown, that chloral is a solvent for fats—so much so that solid fats become liquefied by contact with it—hence it is not advisable to prescribe, for instance, chloral with lard, simple ointment, or even with simple cerate, in a very large proportion. As the result of a number of experiments, the writer finds that a mixture of equal parts of spermaceti and oleum theobromæ forms the best excipient. Vaseline and paraffin—using three parts of the former to two parts of the latter—make a very good basis, but it does not melt as well into an unctuous mass as the former vehicle.—(*Pharm. Journ.*, Feb. 24, 1877.)

9. *Electro-therapeutics*—Dr. Vigouroux remarks that while the general sedative action of the galvanic current is sufficiently known, yet the special hypnotic effect of galvanisation of the head is not less real, although it appears to have been completely neglected at least in France. The process consists simply in passing the current from 3–5 Trouvé cells through large flat electrodes placed on

the temples for 30″ to 1 minute. The electrodes may be applied to other points of the cranium, but the bi-temporal position appears to be the most efficacious. If the application be made in the morning, the patient experiences for the rest of the day a more or less pronounced tendency to sleep. The author has verified this action of the galvanic current more than fifty times, mostly on patients under the care of Professor Charcot, and urges in its favour its almost constant success in the diverse forms of insomnia, its harmlessness, and the avoidance of any digestive disturbance such as is liable to follow the use of hypnotic drugs. Dr. Vigouroux has also met with success in the treatment of nervous buzzings in the ear and auditory vertigo by means of a constant current.—(*Journ. des Connaiss. Méd.*, 15 Mars.)

OBLITERATION OF THE INFERIOR VENA CAVA.

H. Eppinger (*Prager Med. Wochensch.*, quoted in the *Centralblatt*, No. 8, 1877) gives a case in which the obstruction existed at a spot (7 cm. wide) between the entrance of the phrenic and hepatic veins, the vena cava being here converted into a fibrous cord scarcely the thickness of a quill. The walls of the portion of the vein above the constriction were perfectly healthy, while below it, and even in its affluents, they gave evidence of a chronic endophlebitis, exactly similar to endarteritis, with the formation of numerous plates of bone. The obliteration was plainly due to a cicatricial contraction, as the part was totally enveloped in a fibrous cicatrix. Besides the cicatrix and, quite independent of it, the liver showed several spots of cancer, which sprang from the liver-cells themselves and not from either the biliary ducts or the blood-vessels. Collateral circulation was fully established by enormously dilated venæ-azygos, hemiazygos, internal mammary, inferior epigastric and phrenic. J. M. F.

ACETIC ACID IN PSORIASIS.

Dr. Jansen finds acetic acid the most effectual application. After a bath of hot water and soap to soften the crusts, the scales are to be removed by a small brush. The acid is then applied by means of a sponge. Very soon the affected parts become pale, then injected, and finally slightly inflamed. There is a feeling of smarting, which lasts half an hour. The crusts fall off, and in some cases appear no more after the fifth or sixth application; in others they reproduce themselves for a longer time, gradually becoming less and less thick. Only one application in the 24 hours should be made, and the parts should be carefully bandaged.—*Revue Médicale.* S. W.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

SESSION 1876–77.

President—Richard Ross.
Honorary Secretary—William Whitla.

Tuesday, February 20, 1877.

Dr. Ross, President, in the Chair.

Oakum as an Antiseptic Dressing. By Robert Esler, M.D., M.Ch.

Mr. President and Gentlemen,—The value of oakum as an antiseptic dressing was first brought under my notice by the late Dr. John M'Crea, who had been for some time using it extensively; and to this, as to all other subjects which he took up, was applying himself assiduously in observing, and noting carefully what he observed, as the result of his experiments. Hence it is more as a tribute to the memory of my late friend that I come before you with these few and imperfect notes, than from any claim I have from my own brief experience, to ask you to take my opinion for anything but what it is worth. At the same time I hope to be able to put before you as many facts as will stimulate an instructive conversation.

Oakum, as you are, no doubt, all aware, is simply tarred rope reduced to its original state of flax or hemp, with the addition of the tar. Any of us who have been a voyage round the world, or even a shorter circuit, may have observed that the idle time of the sailor is often filled up by the occupation of oakum-picking; and in gaols, workhouses, and penitentiaries, it is made an occupation of profit. Old ships' rigging can be bought at about 17s. per cwt., and the oakum, when picked, sells at 22s. per cwt., so that the difference represents labour. The original use to which oakum was put was to caulk the crevices of wooden ships; but modern iron vessels, excepting the decks, do not require, nor will they be

satisfied with, such a soft substance to mend their breaches—so that, I suppose, the primary use of oakum was to save life; but, more recently, it has been applied to life-saving in quite a different capacity. During the American war, carded oakum was employed extensively in the dressing of wounds; and, subsequent to that time, the surgeons to the Children's Hospital in Great Ormond-street, London, introduced it to this country. Early in the year 1870, *The Lancet* drew the attention of the profession to it, as used by Mr. Pollock, at the St. George's Hospital, and gave it as their opinion that it would supersede other methods, and one reason was its low price, quoting it, as prepared by Bell of Oxford-street, at 1s. per lb., but you will observe that the price which I have paid for it is a little more than $2\frac{1}{4}$d. per lb.

About the year 1870, Professor Lister put the antiseptic qualities of oakum to the test, and found it to answer his expectations; his observations are recorded in *The British Medical Journal* of January of the following year. Trélat, a French surgeon, also used it some five or six years ago, and I suppose that, at the present time, it is to be found in the wards of most of the hospitals of this country; but it is because I do not think that its true value has been ascertained, that I wish to press its use upon your attention. Why it is in use in our hospitals, or by whom it was introduced, perhaps few of us have paused to inquire; but it may be enough for us to know that, having it there, it is a suitable agent, in many respects, with which to surround suppurating wounds. And we hope to be able to show that, as an antiseptic agent, it is superior to any other ready-made substance we possess.

My observations have been made first, in the Union Infirmary, and subsequently, but more minutely, in the Ulster Hospital for Children, and they have been in the following class of cases:—Amputations, abscesses, ulcers, cutaneous erysipelas, phlegmonous erysipelas, and burns. The number of cases of the first class in which I have used this dressing have been in two major and several minor amputations. Either of two methods may be adopted. In the first, the dressing is made as simple as possible. A single strip of lint soaked in carbolic or spirit lotion, applied next the wound, with a roll or two of bandage to hold it in position, and the stump then surrounded with oakum and another bandage if necessary, or you may apply the oakum next the wound, and this method is less objectionable than would at first sight appear; and, for reasons to which I shall presently allude, the flax may be much preferable to cotton in contact with a granulating surface. The advantage of this dressing is, that for stumps it is simple of application, it makes a soft pad on which to rest, and, what is of the greatest importance in the wards of an hospital, *it effectually keeps down any offensive odour*—and more, its effect seems to be to destroy the putridity of the discharge, while the pleasant tarry smell is strongly suggestive of the sea, of ships, and of fresh air. In most of

the cases in which I have seen it applied, healing has taken place by the first intention, and this is, no doubt, partly accounted for by the freedom with which the serum is discharged from the wound, and by the prevention of ingress to any substance which would favour decomposition.

In a Chopart's amputation, in the Children's Hospital at present, you may see the result of this dressing. I am applying it next the wound; it has kept perfectly sweet. And this I attribute to the antiseptic properties of the oakum in which the stump was enveloped.

In *Abscesses.*—I have opened some dozens of abscesses where the only subsequent treatment was a pad of oakum bandaged over the part; and, in every case where there was not diseased bone underneath, the result was more satisfactory than I have ever seen from any other treatment. I will instance one case, that of a labourer, aged about fifty:—The abscess was gluteal, and had grown to almost the size of his head; the skin and muscles were enormously distended. So tedious did I expect the healing that I thought of introducing a drainage tube or plug, but having faith in oakum, I applied a good large pad over the part after evacuating the contents, directed the man to lie on it, so that any discharge might drain into the oakum. The shrunken skin and relaxed muscle, in a few days, seemed to fit into their places, the opening healed without a blush of inflammation, and in a week the man was in his usual health. In some cases it is desirable to poultice for some time before using the knife, and we all know how troublesome it is to continue this for any length with linseed meal, and many surgeons have a great dislike to these oily applications. Liston said, nearly forty years ago, that "hot dressings, filthy unguents, greasy poultices, stimulating plasters, and complicated bandages must give place, very soon, to the elegant substitute for a poultice," referring to isinglass plaster, "and to careful position of the injured part;" and added that it was so long since he used these filthy compounds that his nurses had forgotton how to make them. Now in oakum we have the material for an antiseptic poultice, in abscesses or inflammatory attacks, by simply dipping it in hot water and covering it with waterproof tissue.

In speaking of *Erysipelas*, I need not refer to the many specifics which, from time to time, are recommended and vaunted, nor to the difficulty experienced sometimes in controlling the disease, nor will I allude to the constitutional treatment which should not, in any case, be neglected, but simply to the local application of oakum as a remedy, and I will instance a case or two, in both the cutaneous and phlegmonous stages, in illustration of what I have observed in treatment with this material. The first happened in the Accident Ward at the Union Infirmary, where a strong man, who had been recently admitted, presented one morning the characteristic appearance of the erysipelatous inflammation; the left side of his face, but especially his eye, was most effectually disfigured. I was

accompanied by the house surgeon, to whom I said, "What would you do for this man?" His reply was, "Apply a pad of oakum." So I said, "A pad of oakum let it be." The following day there was scarcely a trace of the inflammatory action present, the swelling had subsided, and there was no return; the application was kept on, however, for several days.

A strumous boy had a true erysipelatous blush on the wrist of the left arm. Next day it had extended as far as the insertion of the deltoid; the limb was surrounded by oakum; the inflammation was arrested at the spot then affected; the arm got well; metastasis followed, however, and the face was attacked a couple of days subsequently. The same application brought about the same result, and I find that Dr. M'Connell is so well pleased with the line of treatment that, when I visited the Infirmary a few days ago, he had several erysipelatous patients encased in oakum. So much for the cutaneous variety. And in the deeper and more serious stage of the same disease—viz., the cellulo-cutaneous, where abscesses have formed, or sloughing is taking place, I am of opinion that oakum is simply invaluable.

The first case, in illustration, which I will mention, was that of an elderly man whose right leg was very extensively involved. The first abscess formed over the fibula, the next above the knee, and another in the vicinity of the groin. I used the knife freely; and, as I had before my mind's eye several cases of poulticing and extensive sloughing, I decided on enveloping the limb in oakum only. No other application of any kind was employed; the patient was anæmic, and the prognosis of the gravest kind. The effect of the dressing was to most thoroughly keep down any smell. Almost immediately healthy action set up, not an unfavourable symptom was present by the end of a week, and the recovery was rapid and satisfactory.

The second case was that of a female lunatic; the part affected was the left leg; the course pursued was the same; and, as far as the leg was concerned, the healing process went on, but bed-sores formed, and the drain on the system was so great that death resulted; but the comfort, the simplicity of the application, and the comparative absence of putrid odours, during a long illness, were results not to be lightly valued.

Oakum in Treatment of Burns.—I need not say a word, by way of introduction, as to the offensive nature of the discharge from burns and scalds, and any means of controlling or lessening this will be hailed by the surgeon and by his staff of dressers with pleasure. Now, I venture to state that one of the best agents we possess for this purpose is oakum; its value as an antiseptic is even more marked in this class of cases than in the former. And while I would rather not have a burnt case in an accident ward, yet, were I obliged to do so, I would simply surround the patient with plenty of oakum, make the dressings so thin and simple that the discharge would flow freely into the tarry mass; and by

renewing this sufficiently often, the matter will be prevented emitting that characteristic odour of burns which is so overpowering, and the labour of the dresser will be much lightened. I have thus treated about a dozen cases of burns, some of them very extensive, and in all the smell was so thoroughly kept under that the patients were not more to be dreaded in a ward than any other surgical case with an extensively abraided surface. Nor need there be any hesitation about applying it next the burn without any other substance intervening. And it does not seem to be so difficult to get it detached as lint; but surgeons' lint, in common use, which should be made of flax, is composed altogether of cotton. You know there is a popular notion that cotton is an exceedingly bad application to sores, that it causes great irritation, and that linen is preferable, and these popular notions are invariably based on correct observations. We may pause here for a moment to inquire is there any cause for this. When we place a fibre of linen and one of cotton under the microscope, we might infer that the cotton would be the less irritating of the two, as its fibres are not so sharp or well defined. Indeed the cotton, although flat, has a perceptible thickness at the edges, is rounded, and somewhat like a thin tube flattened; the flax is not so tubular, not so well defined or rounded, and is sharper; but if, after examination in the dry state, we apply moisture, the cotton fibre is found to twist in a spiral manner; and, perhaps, it is this hydroscopic power of twisting, when moistened, that gives cotton its irritating qualities, and the absence of this quality in the flax which makes it strip off granulating surfaces so easily.

To briefly sum up. The conclusions at which I have arrived, regarding oakum as a dressing, are that:—It is cheap; it is clean; it is easily applied; it is equal to any, and in many respects superior to most other dressings of the same class; and that it is antiseptic. I have not tried to demonstrate by experiment, apart from clinical observations, this last quality, but I intend to do so. And only that it is a wrong method to enter upon an investigation with a preconceived notion, I would state my conviction that it will be found to present a barrier to the ingress of spores or sporules, or whatever germ life infests the atmosphere, and which are such a bugbear to a large school of operating surgeons. Should this opinion prove to be correct, it will be just simplifying Lister's antiseptic method, the principle being exactly the same, as tar and carbolic acid stand side by side as therapeutic agents.

Tar is very complex in its composition; it is an altered resin and an empyreumatic oil, in which the following substances are found:—Creasote, paraffin, picamar, and eupion. It is obtained by the destructive distillation of the pinus sylvestris, and at gas works, which is a huge destructive process of the old pine forests, as they appear to us in the form of coal beds.

As a therapeutic agent, tar is used principally in chronic skin diseases;

its influence on mucous membranes is sometimes well marked; and, in the form of inhalation, the oil of silver pine often gives satisfactory results in chronic bronchial affections.

Tar water long enjoyed a reputation as a specific in numerous diseases; it is made by shaking up one part of tar with four parts of water. The celebrated Bishop Berkeley entertained the notion that tar water was a certain remedy for *every* form of disease. And as the old philosophers cried aloud from the housetops to their fellow-citizens—"Educate your children," so the bishop said that if he had a situation high enough, and a voice loud enough, he would cry to all the valetudinarians upon earth—"Drink tar water." I would not be quite so enthusiastic regarding this tarry preparation, oakum; but, by this paper, my appeal to all who are practising surgery is—"Try oakum dressing."

Had we to manufacture our dressings from the pix liquida, it would be both troublesome and expensive, but the sailor has done this for us with another object in view. And after the rigging has served its purpose on board, and carried the sails which wafted the A 1 at Lloyd's under a tropical sun to many a foreign port, it is sent on shore for our convicts and paupers to prepare, for a short but useful course of service, in the wards of our hospitals. We intend to try it, pay for it, and use it, until we find something to supersede it.

Dr. J. W. Browne congratulated Dr. Esler upon his paper, especially referring to the microscopic features treated in it. He had been using oakum since 1875. He had seen his friend, Dr. Fagan, use it in 1871, and was much pleased with it. Since then he used it for everything himself—for amputations, burns, &c. He believed it was first introduced by Sayer; its great beauty was in its *elastic* and antiseptic properties. In the treatment of burns he did not apply it immediately to the skin, but used a fold of lint saturated with a solution of sulphate of iron (5 grains to the ounce).

Dr. Dempsey saw a Dublin surgeon use oakum five years ago for all his amputations, which seemed to him to modify, repair, and promote union in a satisfactory manner. He used it himself after the opening of deep abscesses, and was much pleased with it.

Dr. Coates saw it used in hospital extensively, but chiefly as a deodoriser, but he thought it had several objectionable qualities; as a dressing he did not think it suitable. In the hospital, sometimes, burns were dressed under the spray; this he thought advisable, and he recommended the practice of putting carbolic acid into the dressing of Carron oil.

Dr. Strachan stated he had, in the Union Hospital, frequently seen Dr. M'Crea use the oakum as an application to ulcers with very good success.

Dr. M'Connell said he was at present using the oakum as an application to indolent ulcers, and he found, in some instances, that it changed their action in twenty-four hours.

Dr. M'Keown thought, from listening to the paper, that the oakum could not possibly be an irritant. Any dry clean substance was preferable to a poultice. As to the question of germs, this, he thought, had to be settled. No doubt good results followed the treatment of those who advocated antiseptic surgery; this, he thought, resulted from the fact that all who had germs on the brain took a great amount of care in dressing their cases. Speaking of ophthalmic surgery, he said here Lister's spray could not be used. Ophthalmic surgeons never dream of germs. Of eye operations lasting ten or twenty minutes, take one hundred cases, and at the very utmost five will show any traces of suppuration. He thought quite too much had been made out of this germ question, but in the end good would result in making men more careful of their dressings. He referred to Hebra's views on erysipelas. He thought that, as regarded the application to ulcers, the pressure was the main point, not the antiseptic quality of the oakum.

Dr. Wheeler, in thanking Dr. Esler for his paper, said he believed that oakum would supplant cotton-wool; he had long given it up for tow, the wool makes such a hard doughy pad, but oakum was decidedly better than either. He never used cotton lint when he could get old linen.

Tuesday, May 1, 1877.

Case of Recurring Hydatidiform or Vesicular Mole Pregnancy. By Alexander Harkin, M.D., Belfast.

Mr. President,—Mrs. C. Stewart, aged twenty-two, the patient from whom the specimen before you was discharged, sent for me on the evening of Monday, 16th April last. I found her complaining of great stomach sickness, of debility, and of an abdominal tumour, for the relief of which she informed me that she had passed the previous three weeks in a special hospital, having left only on that morning. I deferred any further examination till daylight, and again saw her on Wednesday, 18th ult.; she was then pale and anæmic; had an extensive ragged ulcer on the os uteri, and a tumour of pyriform and symmetrical shape, soft and elastic, extending from the pubis up to and several inches beyond the umbilicus. Her breasts were enlarged and painful. She informed me that she considered herself pregnant from November, 1876, having to wean her child in consequence; had great sickness of stomach from January; and that, on July 15th, after a smart hæmorrhage, she had dis-

charged a fleshy substance the size of an egg, evidently the embryo. Her health then got worse daily, and she continued to enlarge up to the moment I saw her. Being satisfied, from the history of the case, from the physical signs, and from my previous personal knowledge of the patient, that I had a case of vesicular degeneration of the chorion villi and placenta, I prescribed an infusion of secale, given in repeated doses; slight pains began soon to show themselves, accompanied with some hæmorrhage; and, at the end of a week, I found her weak, having voided large clots, and with strong expulsive pains. Finding the os uteri enlarged, I dilated, and, with pressure from the left hand over the fundus, about three pints of pearly vesicles came away, some of them buried in the nidus of a degenerated portion of placenta. I then ordered some stimulants, and fluid ext. of ergot, which soon put a stop to the hæmorrhage, and the patient is now progressing favourably to recovery. Her previous history is instructive:—She was married in December, 1874, and became pregnant in the beginning of the next year; she sent for me in April, 1875, for a flooding that had commenced in the March previous; for this she got relief; I saw her again early in June, when she presented an appearance similar to that described to-night; and on 23rd of same month she discharged about two pints of pearly-like vesicles, nearly as large as grapes, and, like that fruit, attached by pedicles to a central stem. After this occurrence she menstruated regularly for nine months, became again pregnant, and gave birth to a living child at the full period. I should not be astonished to learn that she had completed a similar cycle in three years hence, and, perhaps, afforded subject for a similar communication to some learned body like your own.

I can refer to a third case which occurred in a very healthy woman twenty years since, the mother of several children, the first step in which case was a slight accident producing uterine hæmorrhage, and some three months afterwards a discharge of those peculiar bodies I had then preserved in turpentine, as I show them, but they are now dried up and not very instructive. In a fourth case of mole, which I watched for four months after the loss of the embryo, the patient passed a large heavy substance like gutta-percha; the placenta increased, and hardened by deposits of very firm material.

As to the causation of those abnormal bodies, most medical authorities affirm that they are the products of conception, and not at all of the nature of the true hydatid. It is to Cruveilhier that the credit is due of first making this distinction. The most general opinion agrees with the teaching of Barnes and Graily Hewitt, that the disease consists in a perverted development force; and that after the detachment or destruction of the embryo, the chorion villi, continuing in connexion with the uterus, maintain a slow growth; and that the vesicular bodies are thus the result of dropsical swelling of the chorion villi.

Dr. M'Iver asked Dr. Harkin's opinion as to whether the death of the embryo was the cause of the hydatids or the converse.

Dr. Wheeler approved of the treatment with ergot, and thought that the vesicles were produced after the death of the fœtus; he had met three cases in practice.

Dr. Harkin was of opinion that the blood which went to form the fœtus went to form the hydatids after its expulsion.

ACIDITY OF THE GASTRIC JUICE DEPRIVED OF SALIVA.

M. Charles Richet has published a series of observations made on a patient on whom gastrostomy had been successfully performed, and whose œsophagus had become entirely impermeable. Omitting the other phenomena of digestion observable, M. Richet has tried to measure the acidity of the gastric juice by means of baryta water and the tincture of sunflower, and, after seventy-six determinations, he has arrived at the following conclusions:—1. That the mean acidity of the gastric juice, whether pure or mixed with alimentary substances, amounts to about 1·7 grammes per litre. The extreme limits of variation were from ·5 to 3·2 grammes. 2. The quantity of solids or liquids taken into the stomach has no influence on its acidity, and that the activity of the stomach is almost the same whether empty or full of liquid. 3. Wine or alcohol augments its acidity; cane sugar diminishes it. 4. If alkaline or acid substances are injected into the stomach it will always tend to return to its normal acidity, and will succeed in doing so in about three-quarters of an hour. 5. When not digesting, the stomach is less acid than during digestion. 6. For nitrogenous or fatty matters the acidity of the stomach is almost the same. 7. The sensations of hunger and thirst depend neither on the acidity nor on the repletion of the stomach. The average sojourn of food in the stomach is about three hours, or four hours at the latest, while hunger does not set in for nearly six hours from the swallowing of food. As to thirst, it is not entirely allayed by the injection of water into the stomach, as the patient is frequently obliged to moisten his throat, owing to a vague sensation of thirst which he realises in his pharnyx. 8. Food does not disappear at successive intervals into the intestine, but in a mass. During the first three hours of digestion the amount of the ingested matter had experienced no change; in less than twenty minutes afterwards it had all disappeared. With respect to the nature of the free acid in the gastric juice, he believes that there exists free hydrochloric acid and free lactic acid, but that the proportion of the latter to that of the former is as 1 to 9.—*Gazette Médicale de Paris.*

S. W.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

President—Thomas Hayden, F.K.Q.C.P.

Secretary—E. H. Bennett, M.D.

Fractures of the Costal Cartilages.—Dr. Bennett said: This cast and the specimen on the table record the principal facts, with reference to two recent cases of fracture of the costal cartilages, which I have had the opportunity of observing. The history of the case recorded by the cast is as follows:—The individual, a large, powerful man, twenty-seven or twenty-eight years of age, in a scuffle on board one of the dredging-ships in the river, was struck by one of his companions with an iron bucket, swung by the handle; and, being struck in several places, one of the blows took serious effect on the lower part of his chest, on the right side. The result was that he suffered great pain and distress, and the usual phenomena attending fractured ribs. He was admitted into hospital. The details of the case that followed his admission are of most interest, as they bear directly on one of the chief points of controversy in relation to these injuries. On the man's admission, the resident pupil recognised with facility that there existed a fracture of the body of the eighth rib, in front of its angle, and probably of some other ribs. The distress and pain of the patient were entirely seated there; and so great were these that the resident pupil did not act on his own responsibility alone, but the case was also seen by the house-surgeon. The man was then treated in the ordinary way, and strips of plaster and the ordinary bandage applied to his chest. Next morning I saw that, as the man lay with the bed-clothes stripped off, there was an evident deformity of the chest-wall over the right hypochondrium; a tumour existed, which the case exhibits. At the time, having had my attention directed to the subject of fractures of the costal cartilages, the appearance of the deformity at once induced me to diagnose, even before removal of the bandage, the existence of a fracture of the cartilage. I asked whether it had been recognised on the previous evening, and both the gentlemen who saw the case, and who were perfectly competent to determine the phenomena, assured me that no such deformity as I then saw existed at the time of the patient's admission. The strips of plaster securing the fractures of the ribs, and supporting them, were applied, so that the ends of several of them crossed this region; so that, even supposing that the observers had been inattentive, it would have been hardly possible for them to escape noticing so obvious a tumour. We may fairly infer, from the

facts, that the tumour did not exist at that time. When I came to examine the subject, on stripping the bandages off, we had no difficulty in determining that this projection was caused by a fracture of the seventh and eighth cartilages, three or four inches from the sternum, where they formed the covering of the hypochondrium. It was easy to determine that the fractures were strictly transverse. The two cartilages were broken in a continuous line, while the vertebral fragments were displaced beneath the sternal. When we examined farther back in the chest we found that the tissues covering the fracture behind were the seat of emphysema, and of a distinct bony crepitus, on deep pressure. My attention was taken up by the fracture of the cartilages, and I was rather inclined to neglect the posterior fracture; and, without carefully exploring it, I attempted to reduce the displaced cartilages. I did so with facility, but caused such intense suffering to the patient, by disturbing the fracture of the bones, that I desisted, although I had effected the reduction completely, and immediately the deformity recurred. These facts prove—first, that the deformity was developed in the case long subsequent to the occurrence of the injury; and, next, that it occurred in consequence of some force other than the force which originally produced the fracture. I insist on these points, because one of the most disputed questions about these fractures is the cause of the displacement. It has been asserted on the Continent that to the direct violence which produces the fracture the deformity is alone due—that the blow which produces the fracture also causes the displacement, and that muscular action takes no part in its production. Here we have distinct evidence, from the late occurrence, of the deformity, and from its recurrence, after the reduction of the fracture, that muscular action did produce and reproduced the deformity. In this case the emphysema did not extend to the position of the cartilage fracture; it was caused by the rib fracture, and it is to be inferred that the rib penetrated the pleura and lung. An attack of pleuritis followed the injury, and the maximum focus of the physical signs was over the site of the rib fracture. We found it quite impossible to control the displacement, in consequence of the suffering produced by any attempt at combating it, so we had to allow it to remain, as the cast testifies. In about three weeks all active symptoms subsided, and the union of the fractures had so far occurred that the patient was able to move about, and left the hospital. The cast was taken the day before he left.

The second case is of more interest, for it is the only instance I know of in which the dissection of this form of fracture has been made in its early stage. Not long ago I published some cases that I met myself, including three fractures of the lower costal cartilages, caused by direct violence limited to the region of the fracture—cases which, although producing so much displacement and distortion of the part, tell their

own progress in the fact that we are familiar with them up to the present only as examples of united fractures. I have studied, as far as I could, all the cases on record of fractures of the costal cartilages, and there is no such case as this recorded. The recent cases recorded are fractures associated with fractures of the sternum, or of the whole of the ribs on one side of the sternum. Here we see, what has already been determined from the united specimen, that the fractures of this kind are transverse, and are placed strictly in a line with each other; and we see that the common displacement is that of the vertebral fragments towards the thorax and underneath the sternal. So far this case illustrates the facts and inferences already afforded by the examination of the united specimens. But there is one point further to be noticed here. In the specimen which I show we cannot restore the posterior fragment to its place, because the muscles are hardened by spirit, as they were while contracted by rigor mortis. We removed the parts without obliterating the deformity, and fixed the muscles in their condition of contraction. The muscles are chiefly those to which Magendie attributed the displacement, the external intercostal with the transversalis abdominis and the diaphragm. This specimen shows that muscular action enters into the production of the displacement; and there is a feature here which is particularly interesting. In the paper which I published, containing accounts of the united specimen we possess, I drew attention to the fact—which I could not explain at the time—that in the cases of united fracture, on making a section through the fragments, we found the uniting callus developed on the pleural side of the cartilages chiefly, while on the opposite side there was no deposit. We see the explanation of this to some extent in this specimen. On the external side the perichondrium has burst clean across at the line of fracture; on the pleural aspect there is a different condition. The perichondrium is stripped three-quarters of an inch off the sternal fragment, and forms an arch connecting the fragments in their displaced condition. I cannot, nor can any one, assert from one specimen that this takes place in all cases. If it be constant it explains the distribution of the callus. I should have noticed what the cause of death in this case was. The patient, a young man, twenty-three years of age, the subject of Pott's curvature of the spine, was caught in machinery and was frightfully crushed, his feet and legs being completely smashed. He died of shock shortly after admission to hospital. But the man was killed, not by this fracture, but by dislocation and fractures of the foot and leg; and also by being bruised and beaten all over. He was all but dead, in fact, on his admission to the hospital. A point worth notice is, that we have a history of the fracture, as far as it concerns us at present, in the adjoining rib. The sixth rib presents a partial depressed fracture, the result of a blow from a cog-wheel, and indicates the nature of injury

inflicted. It is clear that the costal cartilages had already undergone degeneration—a fact to which attention has already been directed in relation to these fractures.—*February* 17, 1877.

Pneumothorax.—Dr. Hayden said: The viscera before you were taken from the body of a young man, aged 24 years, who died rather suddenly by misadventure, on the 14th of this month. He was admitted into the Mater Misericordiæ Hospital on the 5th of February, suffering from symptoms indicative of an advanced stage of phthisis. An examination of his chest showed that there was extensive excavation in the upper lobe of the left lung. The hectic symptoms were exceedingly urgent, especially the perspiration, which, I may here parenthetically remark, was controlled in a remarkable degree by the use of dilute phosphoric acid. He was allowed to get out of bed on several days before his death. On Tuesday last he unfortunately became excited, and had a severe paroxysm of coughing, which was immediately afterwards followed by acute pain in the left side of the chest. Throughout the entire of that night he suffered excruciating agony, with extreme dyspnœa. When I examined him the following morning I found evidence of pleuritis on the left side. The examination was not quite satisfactory, owing to the irritability of the man, and the aggravation of his sufferings, which the slightest movement seemed to cause. He died in the course of the following night, the 14th. I was quite prepared to find that one of the most formidable accidents in advanced phthisis had occurred—namely, perforation of the pleura and eruption of the contents of the vomica into the pleura. The organs are now before you. You observe that in the upper lobe of the left lung is a cavity so large that the entire hand can be easily passed into it. The interior is ragged, as usually is the condition of the walls in such cases. The vessels traversing the cavity in various parts are encapsuled by adventitious structure. On the internal surface of the upper lobe is an aperture as large as the point of my little finger. This is the aperture by which the contents of the vomica were discharged into the left pleura. In this situation the walls of the cavity had become very much thinned; it consisted of nothing more than thickened pleura. Through this aperture the contents of the vomica had been discharged, during the tension consequent upon the severe paroxysm of coughing. The left pleura is in an early stage of inflammation, thickened and covered with flocculent lymph. The entire of the remaining portion of the lung is thickly studded with minute tubercle. I will not undertake to say whether this is veritable miliary tubercle, or only a caseous transformation of cell products in the interior of the smaller bronchial tubes and air sacs. I intend examining the lung before making a report on the subject for publication in our Proceedings. In the lower lobe of the lung are several large masses or aggregations of these products.

There is considerable hyperæmia of this lobe. The right lung is in a similar but evidently more advanced state. In it is observed a large mass producing almost uniform caseation, as seen on section. In the upper lobe are two or three excavations, which, judged by the smoothness of their walls, would seem to be localised bronchiectases. No doubt this was the first part of the lung involved. I think the condition of the parts presented here is sufficiently indicative of the process which the lungs had undergone. It would appear that the starting point of disease was a localised catarrhal pneumonia of the right superior lobe, and that subsequently the remaining portions of both lungs became inoculated from this by diffusion. The heart is in the ordinary condition, neither enlarged nor diminished in volume. The anterior edge of the lung, as commonly happens when only a small portion of the lung remains for respiration, is emphysematous. The history just narrated shows the necessity for great caution in dealing with patients in the third stage of phthisis—namely, that of excavation. Excitement of every kind should be avoided, as such may have the effect of inducing a paroxysm of coughing; and under the tension produced by such paroxysms, if the vomica be near the surface, the accident which proved fatal in this case may happen. The symptoms and signs which indicate its actual occurrence are well known—namely, a sudden and acute pain in the side, collapse, copious perspiration, incessant dry cough and gradual sinking, inflation of the pleural cavity, immobility of that side, metallic phenomena and displacement of adjacent organs when excentric pressure is not neutralised by adhesion. Dr. Bookey, who kindly examined the lung-tissue with great care, has made the following report:—"On section of lung a number of firm whitish nodules were seen scattered through its substance. These nodules on pressure exuded either purulent fluid or small plugs; the intervening pulmonary tissue was slightly congested. Histology of each nodule: the centre of each was formed by a minute bronchus filled with caseous matter; its walls were infiltrated, and in some places disintegrated with same material; surrounding the tube was an area of caseous infiltration of the air-vesicles, the size of this area varying with the age and size of the nodule. The margin of the caseous zone gradually passed into catarrhal infiltration of the air-vesicles, with congested pulmonary vessels. No structure resembling true tubercle was found."—*February* 17, 1877.

Aneurism of the Aorta.—Dr. J. W. Moore said: By permission of my colleagues, Drs. Macnamara and White, I lay the present specimen before the Society. Yesterday a man aged forty was admitted into the Meath Hospital in a dying state. His history, as given by his brother, was as follows:—He had been about six months previously discharged from the army, after having served twenty-one years in it; during those

six months he had kept a coffee-stand at Portobello, at which he sat from five o'clock in the morning until twelve at night. While serving in India he suffered from fever and ague, and seven years ago he had rheumatic fever. During the last month he had had "cough and asthma," with slight pain between his shoulders rather to the left side and shooting pains down his arms and legs. He thought that these were rheumatic. He also complained of a queer feeling like tightness in the throat. His brother observed that he walked with a droop in his left shoulder. It pained him to lie on his back, and he was also unable to lie on his right side. His friends noticed that he was caught in his breath when speaking, and on one occasion he fainted while coming from the coffee-stand. He complained that going upstairs gave him a racking pain between the shoulders. Becoming much worse on the morning of his admission, he drove from his house with his wife to the hospital. On the way he told her to hold his head, as he was going to cough. He was seized with a fit of coughing, and intense venous congestion set in, accompanied with extreme dyspnœa. In that state he was carried to the accident ward, and was seen by Mr. M'Cullagh, the surgical resident pupil on duty, who injected anhydrous ether subcutaneously, and, no doubt, by doing so prolonged his life. Mr. Macnamara visited him shortly afterwards. I happened to be in the hospital at the time, and he asked me to examine him. We dared not move him, and, therefore, were unable to make a complete examination. We found his heart beating tolerably vigorously; his pulse at the wrist was also comparatively strong, but was uneven in volume. An examination of his chest showed a percussion note all over the left side more or less dull. On the right side the sound was normal. I could not in any part of the chest detect the slightest respiratory sounds. With each act of expiration—and the acts of expiration were few and far between—the external jugular veins became very distended. They completely collapsed during inspiration. No positive diagnosis was made. It was clear that the man was dying from extreme venous engorgement of the right heart. Venesection was performed, which gave him temporary relief. He was ordered an enema at six o'clock in the evening, and shortly afterwards died. His pupils were contracted a short time before his death, but at the time of his death they were dilated. The *post mortem* examination was made yesterday morning. On opening the chest, and exploring the cavity of the thorax, it was found that a very copious effusion of blood had taken place into the posterior mediastinum. The source of this was easily discovered, for at the commencement of the descending portion of the thoracic aorta a comparatively large aneurismal sac was found. This was posteriorly in apposition with the spinal column; and the bodies of the second, third, fourth, and fifth dorsal vertebræ had been deeply eroded, leaving the inter-vertebral cartilages tolerably sound. The erosion was more

complete on the left side. An examination of the spinal canal was also made, but there is no evidence of an escape of blood into it. The entire of the transverse part of the arch was more or less dilated. The heart was healthy, the valves being perfectly sound. There is one small patch of commencing atheroma about the mitral valve. The thoracic aorta is in an advanced state of atheromatous disease, the patches of atheroma extending from the valves upwards. On the anterior aspect of the ascending aorta a new aneurism nearly the size of a walnut was beginning to form. The aorta was filled with a firm clot, and all the cavities of the heart were also filled with clots. The lungs are in a state of general venous hyperæmia to a very considerable degree. It was quite clear that the aneurism had not been suspected, and that the man was suffering simply from thoracic symptoms, when it suddenly gave way during his fit of coughing in the cab, and thus led to his death.—*February* 24, 1877.

True Aneurism of the Heart.—Dr. Little said: I am indebted to my colleague, Dr. Barton, for an opportunity of showing this specimen of a rather rare lesion, which I am sure will interest you, namely—spontaneous rupture of the heart. An old man was admitted into the hospital a few days ago in consequence of some injury to the ankle, and yesterday, after a hearty meal, he lay down, and appeared to go to sleep. After some time he was found dead. On a *post mortem* examination the pericardium was found full of blood, and an examination showed that this resulted from a rupture of the left ventricle of the heart. There appears to have been a true aneurism of the heart, and the rupture took place by the visceral layer of the pericardium giving way. You can see the site of the aneurism where it passes into the left ventricle behind the posterior segment of the mitral valve. The tissue of the left ventricle is very much softened, and the appearances to the naked eye are sufficient to show that it has undergone fatty degeneration. One can see also that it is somewhat hypertrophied, and that the walls are thicker than they should be. When we come to examine the aorta, we find that a portion of it has undergone the atheromatous process. This little piece affords a very good specimen of the atheromatous change, in which the portion of the lining membrane of the artery in contact with the blood stream has become raised up in consequence of the formation of the cellular element between it and the middle coat of the vessel. I think the reading of the case is similar to that of other cases I showed some years ago here, in which the hypertrophied ventricle has undergone fatty degeneration. Probably the first stage of the lesion was the atheromatous degeneration of the blood-vessels, which imposed a greater strain on the left ventricle than it should bear in order to carry on the circulation. The result was that the hypertrophy increased the girth of the muscular

wall of the left ventricle. After some time, the atheromatous process proceeding, involved, as it has done, the coronary vessels, and the supply of blood being thus cut off, the hypertrophied ventricle was starved. Thus we had softening and fatty degeneration in the ventricle, which previously had been too strong and powerful. The degenerate fibre gradually gave way, until at last for some time before death there was merely the visceral layer of the pericardium between the blood stream and the cavity of the pericardial sac. That gave way, leading to sudden death. The rent is a small one. I may mention that before the rent was opened, when water was put into it, the opening was so small that it quite contained the water. There was a clot of blood also, which, no doubt, helped to close it. When the ventricle was filled with water, before it was thoroughly opened, the water merely bulged into the aneurism without escaping.—*February* 24, 1877.

Mediastinal Sarcoma.—Dr. Bennett said: I received from Sir William Miller, of Londonderry, for the purpose of being submitted to this Society, the specimen now before you, with the following description:—"I send you to-day a box containing the heart and adjoining parts from a man who died last week in the County Infirmary, after having been a patient there since the 19th of August last. When first admitted he complained of dyspnœa, inability to sleep on the left side, and pain and numbness in the left arm. There was a marked difference between the two radial pulses, the left being the weaker. A small lump was visible between the fourth and fifth ribs, about an inch long, above the nipple. It was about the size of a hen's egg, and felt as if firmly attached to the ribs. The heart was not displaced, and no cardiac murmur was audible. Respiration on the left side was feeble, and a slight degree of dulness was perceptible on the left side, both under the clavicle and posteriorly. He complained of great pain and want of breath. No disease could be detected in his other organs. His urine was normal. The diagnosis was at first doubtful, but, as the lump gradually enlarged, I made up my mind that it must be a malignant internal tumour. The *post mortem* examination was hastily made, as his friends were on the watch. I send you the parts." I wrote to Dr. M'Cartie, the house surgeon, inquiring if there was any pleural effusion, and in reply received the following:—"There was no pleural effusion whatever, but some pericardial effusion. I do not know whether Sir William Miller told you that the axillary glands were not engaged, though a section of the external tumour discloses the fact that all other adjoining tissues are implicated, while a regular cancerous mass ran up under the left clavicle." These specimens are interesting as illustrating a disease of which several specimens have lately been shown to the Society. This case differs from them in some points, and especially in this—that while we have a very large mass of tumour contained in the

mediastinum, and involving all three mediastinal spaces, and involving also the pleural cavity at the left side, and extending to the axilla, there was no pleural effusion whatever. First tracing the disease from without inwards, we have the integuments involved by an external tumour extending from the left mammary region to the axilla, and we find that this part is what is apparently an ordinary encephaloid tumour. There is no evidence of its involving the ribs. It has been evidently dissected out from adhesions between the ribs, and, escaping through them, has passed amongst the surrounding tissues—muscles, skin, and fasciæ are a confused mass of disease. The entire thoracic and mediastinal viscera, including the great vessels, are all bedded in this mass of soft medullary material. The pericardium on the left side, above the arch of the aorta, is entirely concealed in the mass. I can pass my finger downwards through the aorta and into the left ventricle. This mass fills the whole of the arch, and extends behind it into the interstices between it and the trachea. The right side is tolerably free. The right lung is omitted from the description, and there is no evidence of disease on that side. Along the left lung, between the pericardium and the pleura, we have a continuation of the mass, involving the internal side of the left lung. It is clear that the external mass was in some point connected with this. The adherent pericardium was partly torn off, so that the heart is exposed. Passing to the diaphragm we see the central tendon coming through the centre of a large mass underneath the heart. Opening the pericardium we find in front a small space of it presenting signs of recent pericarditis. The lymph is soft and flocculent, though firm enough to require the handle of the scalpel to break it through, but it can be easily isolated. Along the edge of the left ventricle an old adhesion exists, which powerfully resists any attempt to tear asunder the two layers of the pericardium. I think there were two dates of the pericarditis—an old and a new one. The old adhesion has conducted the malignant disease through to the tissue of the heart itself, the muscular tissue of which is largely involved by it. In fact, in this region but little of the heart can be exposed where the tissue is not converted entirely into the substance of the tumour. If we open either ventricle we find that the diseased tissue is limited to the walls. The cavities are healthy. The heart is normal, and the tumour does not extend into any cavity. At the apex we see the greatest extension of the disease inwards. It looks like rather pale-whitish fat. I have no doubt that these are the lines of an extension of the disease. The pulmonary artery I have laid open, and not completed the section, in order to show the relation the tumour bears to the tissue of the artery. We see that the substance of the pericardium at the apex is infiltrated. All the tissues are condensed by this mass. As we turn round the external walls of the pulmonary artery we find that they are involved and converted into it. A wedge-shaped process

extends down the artery, but has not reached the heart. The vena cava superior is healthy as it enters the heart and pericardium, but as we trace it up to the innominates it commences to be obstructed. I trace it as far as possible through the tumour to where its walls are absolutely identified with the tumour, still there is no projection of the tumour into the cavity, nor ulceration of the inner coat; but all the coats, except the epithelial coat, are involved. The central tumour is, perhaps, the oldest part of the disease; and, in the centre of it, there is a yellowish mass, which looks at first sight like a scrofulous abscess. I have no doubt from the puckering and in-drawing of the tissues round it, though I have not had time to examine the tissues of the altered part, that we have here a good instance of caseous degeneration. We have two or three patches, which are excellent specimens of this form of degeneration which has been so well described by Virchow in relation to sarcomatous growths. So far we have traced the tumour spreading continuously through the areolar tissues of the mediastinum, and extending as far as the axillæ and the clavicle. We have also recorded the fact that the axillary glands are not involved. Everywhere that you can detect a gland—and we find the bulk of the bronchial glands to the right of the lung and the arch of the aorta—each one of those glands, although bedded in the tumour, is absolutely free from it. The glands are entirely respected and free of infiltration. Passing into the lung we have evidence of dissemination of the tumour by continuity, but there is in the lung an intermediate form of dissemination of the disease. We have all over the portions of the lung that lie in contact with the prime mass—not in the substance, but in the subpleural tissues—these secondary sarcomatous deposits developed. All these, and one of them especially, present the umbilical depression which characterises Farre's tubercle of the liver; I do not think that I ever before saw such a perfect example of the kind in the lung. The depression is due to the same cause as in the secondary deposit of the liver—namely, fatty degeneration in the centre of the mass, a change similar to the caseous degeneration in the other spots that we have noticed in the original mass itself. From a microscopic examination of the tumour, as far as I have been able to make it, I have satisfied myself that it is a specimen of what has been called encephaloid sarcoma. The cells are small, and the whole tissue seems formed of nothing else, the intercellular substance being scanty. An examination of the central parts reveals the fact that they are in a state of fatty degeneration. I think we are indebted to Sir William Miller for having forwarded to us this interesting specimen.—*February* 24, 1877.

Purpura Variolosa.—Dr. Nixon said: I desire merely to exhibit these specimens, as I am not prepared to report fully upon their change of structure. They were taken from the body of a patient aged twenty-

eight, a very strong, robust man, who presented himself at the Mater Misericordiæ Hospital, on Sunday, the 4th of February. He was a brewer's porter, and had been very intemperate in his habits for six weeks before his admission. Two days before he presented himself at the hospital he got a severe rigor, succeeded by repeated chills, which continued up to the time of his admission. He had neither pain in the back nor vomiting. Early on the morning of the 5th July he noticed a red rash on the back of his forearms and hands. This rash extended up his arms, and covered a small portion of the front of his chest. He had then slight sore throat. On the following day the rash extended over the entire of the trunk. It assumed a very dark, purplish red colour, such as I had never seen in scarlatina. At the lower part of the abdomen, extending upwards towards the navel and downwards towards the knees, were a number of large purpuric patches and petechial spots. We also noticed some purpuric patches on his back. His conjunctivæ were, at this time, intensely bloodshot, and his tongue thickly coated with a moist white fur, and having an appearance as if it had been parboiled. His temperature was 103·2°; his pulse about 130; and his respiration 32 in a minute. The face was considerably swollen, but there was not the slightest appearance of any rash on it, contrasting remarkably with the whole of his trunk and extremities, which were covered with the dark purple rash, interspersed through which were the purpuric patches. On the 6th of February, two days after his admission, he vomited a large quantity of black blood. At the same time he had melæna. His voice became husky, but his pulse remained full and strong, and, in fact, his general strength seemed entirely unaffected. A few hours after I saw him, on the 6th of February, he died. Up to the moment of his death his consciousness was entirely unimpaired. He asked for water, and drank freely of it. He then complained of an agonising pain across the front of his chest, "as if his heart were breaking," and he died in a moment. I made a *post mortem* examination, with the assistance of my resident, Mr. Horan. The posterior surface of the body was the colour of a bronze statue, or like a polished grate. This specimen, a portion of the integument, does not fairly represent its condition, as the discoloration has to a great extent disappeared. The blood was remarkably fluid, and intensely black in colour. On opening the sternum and examining the lungs, we found that the apex of the right lung presented what, at first sight, seemed a gangrenous condition. It was softened, infiltrated with blood, and granular upon section. Both ventricles of the heart were in a state of extreme contraction, especially the left. There was not a single drop of blood in any of the cavities. The liver presented the very remarkable appearance which it still retains. It seems in a state of granular fatty degeneration. This is of some interest in connexion with the observations

of Curschman, who states that in cases of purpura variolosa, the liver is sometimes found in a state of fatty degeneration, resembling the condition sometimes observed in cases of poisoning by phosphorus. The spleen presented no change in its appearance. The kidneys were apparently normal. No examination was made of the spinal cord.—*February* 24, 1877.

Comminuted Fracture of the Femur implicating the Knee-joint.—Mr. Stokes said: This is an example of an extensive compound and comminuted fracture of the femur, which was taken from a patient in the Richmond Hospital, who was admitted into that institution on last Monday. The patient, a young man about twenty-eight years of age, was on that day aiding in the formation of a hay-rick. He was on a ladder which was resting against a partially-made rick, and on which two other persons, who were also assisting in the making of the rick, were likewise standing. The patient was nearly at the top of the ladder, and the other two were beneath him. They were receiving bundles of hay from labourers on the ground, one handing them up to the other until the top of the stack was reached. In order to prevent themselves from falling they were lashed to the ladder, to which they had their backs, their faces being turned towards the hay on the ground. The rick gave way, and the ladder slipped down the side of it. The two labourers underneath the patient managed to disengage themselves and jump off the ladder, but the patient unfortunately did not succeed in doing that. During the fall the ladder turned over, and he fell on his face on the ground, with the ladder on top of him, and an enormous quantity of the hay over the ladder. His knee apparently came first in contact with the ground; and the result was the extensive injury which he sustained. After a considerable time he was extricated from his position, in a state of great exhaustion, suffering intense pain and half smothered by the hay which was over him. He was carried to the hospital, and I saw him in the evening. He was then in a state of great collapse, and his pulse was extremely weak. He had suffered a great deal from hæmorrhage, which took place from a wound just over the side of his knee-joint, and through which this fragment of bone was projecting. There was a great deal of effusive hæmorrhage all about the soft tissues in the vicinity of the injury; and he was, as I have said, in a state of extreme collapse—so much so, that I deemed any operative interference at that time quite unadvisable. On the next morning I found that he was considerably better, that his pulse was stronger, and that he had had a fair night. He was quite willing to allow us to do whatever we thought advisable to save his life. Accordingly I removed the limb, performing the amputation near the middle of the thigh, by a double antero-posterior flap operation. An oblique fracture going completely

through the condyles and joint can be observed. Immediately above that is a very extensive comminution of the bone. I have never seen anything so extensive, except in cases of gun-shot injuries; and I have had an opportunity of seeing some injuries of that description in which I have seen as large an amount of comminution as in this case. I counted twelve or fourteen fragments, and the bone is in some places almost pulverised. Beyond this extensive comminution, I believe there is not anything of special interest connected with the case. I may add that since the operation the patient has been progressing very favourably.—*March* 3, 1877.

Bright's Disease.—Dr. MacSwiney said: The morbid specimens I produce to-day are the exponents of a disease of which many examples have frequently been presented before to the Society—so many, indeed, that it might almost appear unnecessary to add to the number. But the disease which they indicate is of such gravity, and these pathological products form such typical examples of one of its varieties—namely, acute Bright's disease, that I concluded to submit them to the notice of members. The patient was a man, aged forty-six, a gas-fitter by trade, of temperate habits, and healthy parentage, who was the subject of œdema of the lower extremities five years ago. A moderately severe illness ensued, from which, however, he soon recovered, continuing in perfect health up to twelve weeks ago, when he was attacked with a much more severe train of symptoms. His chest became engaged; there was cough, breathlessness, loss of strength, loss of appetite, loss of sleep, and presently great general œdema and peritoneal dropsy. He suffered also at this time from intense headache. When I saw him his renal secretion was examined, and, from its revelations alone, it was tolerably easy to arrive at the diagnosis that he was suffering from acute Bright's disease in a moderately advanced stage. He was put upon treatment, and was apparently doing very well, until one of those cold days five or six days ago, when suddenly an alarming change for the worse set in. His breathing became extremely hurried; his face was pinched and anxious; his dropsy increased rapidly; there were cold surface and feeble circulation; and ultimately he died twenty-four hours after the appearance of the new train of symptoms. My friend and colleague, Dr. Collins, was good enough to make a *post mortem* examination, and I now lay before you the kidneys and heart which had been removed. The kidneys are, externally, good examples of the large mottled kidney. The capsules are easily peeled off; the surface is marked here and there with conspicuous stellate patches of blood-vessels. Internally, the appearances are, I think, very striking and characteristic. The cortical portion is greatly enlarged, and disproportionately so to the pyramidal structure, and its colour is in marked contrast with the colour of the

pyramidal portion, being of an ivory whiteness, while the pyramidal portion is of an extremely dusky red. Little red lines in the cortical substance insinuate themselves between the tubular and the pyramidal portion, and thus constitute the branched fan-like appearances which are sometimes designated as "sheaf-of-wheat" condition at the base of the pyramids. Both kidneys are equally affected. The heart, also, I think, affords a very good example of the consequences of obstruction of the smaller vessels which occurs in this disease, and which imposes on the heart the necessity of over-action, in order to propel the blood in its state of great arterial tension through the kidneys and through the impeded capillaries, thus inducing a condition where the left ventricle is much enlarged. Its cavity is not dilated, but its muscular structure is greatly hypertrophied. There is not any organic disease in either the aorta or the mitral flaps. There did not appear to have been any incompetency, nor had there been any supposition during life of the existence of any organic valvular disease. Dr. Collins, in his letter, says, "My examination of the dusky urine which your patient passed a few mornings before his death, yielded the following results:—Specific gravity, 1016; faintly acid reaction, albumen present in very large quantity, apparently amounting to one-half of the whole when it had settled in a test-tube. Microscopically the copious deposit consisted of renal epithelium, some cells in a state of fatty change, others much broken down, forming a granular *débris;* blood corpuscles; lastly, abundant tube-casts, chiefly of the epithelial and granular varieties, with a few indicative of fatty change. A microscopical examination of the portion of the cortex and medulla of the kidney showed considerable fatty degeneration, affecting distinct areas in both situations, more markedly in the cortex. The uriniferous tubes were absolutely choked, owing to the extensive proliferation of their epithelial elements. Extreme and rapid distension of these tubes was the probable cause of the apparently bloodless and mottled condition of the kidneys." In fine, sir, I venture to say that the life-history of this patient, together with the morbid conditions found in the heart and both kidneys now exhibited, constitute it a most characteristic and instructive example of the ravages of acute Bright's disease in an advanced stage.—*March* 3, 1877.

Fracture of the Cartilages of the Trachea.—Dr. Corley said: Although the case I am about to submit is one of extreme interest, I am not sure that it is one exactly of the sort that should be exhibited before this Society, inasmuch as the pathology of it is intimately connected with its clinical history; and therefore I must trespass on the Society with some of the facts before we examine the pathological specimen:—Mary K., aged thirty-six, married, and the mother of several children, was admitted into the Richmond Hospital on the 2nd of February

1877, with the following symptoms—viz., great dyspnœa and stridulous breathing, face congested, lips bluish. She seems to have a great quantity of mucus about her trachea, which she had much difficulty in expectorating—in fact, she did not appear to have strength to cough—she had a remarkable inflammatory blush, with œdema, and a line of superficial ulceration on the upper and front part of her throat, caused, she said, by a liniment or blister which she had applied to it. Her position in bed was peculiar—sitting up, her head bent forward, frequently endeavouring to cough or vomit, for she seemed to think if she were "sick in her stomach" she would find relief. The history of the case is as follows:—She had always been addicted to drink; about six weeks previous to her admission, in a domestic quarrel, she was seized by the throat, and received a violent squeeze. She was very unwilling to give particulars as to the injury, and rather tried to make light of it; and she stated that the effects of it soon passed away, almost entirely. About the middle of January she caught, as she thought, a heavy cold, and the symptoms present on her admission rapidly supervened. About the end of that month she went into the Whitworth Hospital, where her case was looked on as one of laryngitis, and treated accordingly. She left of her own accord in a couple of days, but, becoming worse, she was admitted into the Richmond. She was very carefully examined as to her chest, but, save a few slight rales, nothing could be detected implicating her lungs or bronchia; there was, however, a marked "stridor from above," and loose muco-crepitating rales could be heard in the trachea as well as the stridor. She referred all her pain and dyspnœa to a point immediately behind the fourchette of the sternum. Her pulse was 108. On the day of her admission she was examined laryngoscopically, and, although there was slight redness and œdema of the vocal chords, there was not enough to account for her symptoms. A consultation was held, and under the treatment adopted she seemed to improve decidedly for two or three days—the expectorations becoming more copious and muco-purulent. On the 6th and 7th she did not seem so well, and on the morning of the 8th a second consultation was held—her temperature was then 101·2°, her pulse 116, and on that night she became much worse, seemingly suffering from a combination of dyspnœa and asthenia. Next morning, on consultation, tracheotomy was decided on almost as a forlorn hope. Accordingly, the operation was performed; there was great trouble experienced in seizing the trachea, and the introduction of the tube was very difficult. A quantity of bloody mucus was ejected both through the mouth and the artificial openings. During the operation her pulse and respiration failed twice, and she only recovered by the rapid carrying out of Sylvester's method. Notwithstanding this re-establishment of vitality, she only survived the operation about two minutes.

Post mortem.—The heart is small; the left ventricle normal; the right

is exceedingly thin and loaded with fat; the substance of the muscle is very pale, and has the appearance of fatty degeneration; the most remarkable condition is exhibited at the base of the left lung; the right lung was healthy; the lower lobe of the left lung was so intimately adherent to the pleura that it could not be removed without tearing it, and we had to leave a portion of it; this part was of a bright red colour, studded with minute black points, and non-crepitant. Infarction appears to have occurred at this point; possibly a small portion of fibrin may have reached the auricle, and passed on to the lung to be arrested here.

I felt a strong objection at first to operate in this case, for it seemed to my colleagues and myself that an operation would afford her but a slight chance of her life. We shall presently see from the results of the *post mortem* that under no circumstances could anything have been done, as we could not have anticipated the conditions we found after death. She was extremely reticent, and seemed to make light of the way in which the accident took place. The condition of ulceration in which the front of her throat was, and the great œdema, prevented us from seeing the condition of the parts; and even if they had been in their natural condition, we might not have been able to detect what was afterwards found. On taking out the trachea at the *post mortem* examination, we found that the incision was half an inch, or a little more, in extent. Above this was a ragged opening, into which projected the broken ends of two or three cartilages, evidently fractured some time before. At the time of the examination they were smooth and rounded off. We find the sac of an abscess, which was very well seen in the early and fresh condition, and was large enough to hold a walnut. This passed forward round the lower part of the cricoid cartilage and the left lateral lobe of the thyroid body, and communicated with the ulcerated opening in front. The sac of the abscess had involved about a third or a half of the upper part of the cricoid cartilage, which was in a state of necrosis. I particularly examined this cartilage to see if a fracture had occurred, but could detect none. Plainly the upper rings of the trachea are fractured, and the only doubt is as to the production of the abscess which communicated with the opening into the trachea. The doubt I felt was as to whether the cricoid cartilage was injured itself, and the necrosis and abscess were subsequent to it, or whether the abscess spread from the opening in front of the trachea and involved the lower part of the cricoid, and that the necrosis was the result of the contact with the pus. The conditions during life did not indicate what we see here, and the considerations to guide us were not suggestive of the advisability of any operative interference. In the first place the laryngoscopic appearances were not well marked, and in the next place all her pain and dyspnœa occurred at a point immediately above the sternum, and did not seem to point out to us that if we interfered surgically we would relieve

the particular cause giving rise to the symptoms. There was thickening of the vocal chords, and also slight redness, but not well marked, nor sufficient to account for the dyspnœa she suffered. Again, there was a large amount of tracheitis; and, lastly, I have to mention a pathological condition which probably is an explanation of the rapidity of the fatal issue. She had on the right side of her heart a well-marked *ante mortem* clot of the usual character, which ran up from the right side into the bifurcations going to the right and left side of the pulmonary artery. I have not seen any case of fracture of the tracheal rings similar to this even in Mr. Gray's article in "Holmes's System of Surgery." It presented during life a great many difficulties, and I do not think any foresight would have enabled us to arrive at a closer appreciation of the real state of matters than we did; and as the patient seemed to be getting better for two or three days, we did not think it advisable to resort to tracheotomy. If the condition of the heart had been diagnosed, we should not have performed it; but, under the circumstances, and the symptoms appearing to be partly the result of dyspnœa and partly of asthenia, we thought we ought not to shrink from the operation.—*March* 10, 1877.

Partial Fracture of the Femur.—Dr. Bennett said: This specimen I show more to put it on record than for any other purpose, because, unfortunately, the interest in it is greatly diminished by the want of a history of the case. The specimen is not identified with the body from which it came, having been obtained from the dissecting room. But it presents very remarkable features. In the upper region, both at the base and at the neck of the great trochanter, and again, where the linea aspera leads to the great trochanter, and again, at the lesser trochanter, we find that the tissue of the bone is absorbed, and has been rendered porous; it is in such a state that the slightest pressure of the finger breaks into the cavities which have been excavated in the tissue. In the lower part of the great trochanter, which is still undamaged by rough handling, a cavity has been excavated, the shape and appearance of which is such that the disease to which it owes its production is easily determined. If we compare this with well-known specimens which have been identified, and the history of which is known, we shall find that the appearance of the cavities are sufficiently characteristic. They are cavities such as we know to have been produced by secondary deposits of cancer. All carry a family likeness through them. If we compare the openings, where the secondary deposits have reached the surface, we see that they are absolutely identical; so close is the agreement between this specimen and others of the same kind, that I do not hesitate to state that these cavities were produced by secondary malignant deposit. But this is not the chief point. Turning to the trochanter minor, we find two very rare

conditions of the femur. A tongue of the bone stands up above the surface of the compact tissue of the shaft, nearly an inch in length, V-shaped, the limbs of the V spreading downwards from the base of the lesser trochanter—a condition which was clearly produced by some wrench, which produced a partial fracture of the compact tissue of the shaft. Again, at the trochanter minor, we have the upper portion of the process fractured, for a distance corresponding exactly to the width of the fissure in the shaft—that is, we have two partial fractures—viz., one a partial fracture of the shaft, and the other a partial fracture of the lesser trochanter, and this, apparently, produced by something that caused a separation of the parts to the same degree. It is fair to presume that both these fractures were produced at the same time. It is clear that this bone—though we have not yet made a complete section of it for fear of destroying the appearances—had been weakened by a deposit in its tissue of the same character as we see in the great trochanter and below it in the shaft, and, consequently, had yielded to pressure which occurred under some sudden strain during life; the parts gave way, but only to a slight degree. Had the force been greater probably a complete fracture of the bone would have occurred. I exhibit this specimen in consequence of the rarity of partial fractures of the femur. There are partial fractures of the bones of the forearm, but I do not know any other instance of partial fracture of the femur, except that recorded by Dr. Mussy,[a] in 1856, in which case the neck and upper part of the thigh-bone were all but detached from the shaft. For many years the possibility of this injury was denied; but I do not think anyone can doubt that these are *bonâ fide* specimens of partial fracture, different from that referred to, and obviously resulting from disease of the bone itself. Round the fractures we have callus produced, which is sufficient proof of their being the result of injury to the bone during life.—*March* 10, 1877.

Lympho-sarcoma of the Mediastinum.—Dr. Finny said: The specimen which I am about to describe, one of lympho-sarcoma, both external to and behind the sternum, presents points of interest, pathologically and clinically. To the former of these I will confine myself as far as possible. It was taken from a young woman, aged thirty, a housemaid, who had been under my observation during the last two months of 1876. She fell down a flight of stairs about two years ago; her fall being broken by a box, over which she rolled. The effects of the accident passed away, and it was considered of so little consequence that she did not give up her occupation or lie by for more than a week. About two months before seeking advice at the City of Dublin Hospital, she began to suffer from slight pain in the chest, and noticed a swelling over the second costo-sternal articulation, on the left side. On coming to the dispensary,

[a] American Journal of Medical Science. April, 1857.

she was seen by Dr. Benson, who recognised the affection to be of a more serious character than she had thought it to be, and she was admitted under my care on the 18th of October. On admission, and for the first few days, the following were her symptoms:—Her pulse ranged from 130 to 150; and on one night was 154. Her temperature, on many occasions, was normal, but generally ranged from 99° to 100·5°. She had a pain in the chest which radiated down her arms and up her neck, and which sometimes diminished, and at other times assumed the paroxysmal character of neuralgic pain. Her general health was good, and her spirits excellent, and she seemed to consider her case as of very slight consequence—so much so, that it was with difficulty we could retain her in the hospital. On examination of her chest, a prominent tumour was found in the neighbourhood of the second rib. This tumour was resistant to the feel, and gave an impulse synchronous with the beat of the heart. On placing the finger at the side of the tumour, these impulses were better felt than at its highest point. It had not the distensile character of an aneurism with fluid contents; but gave pulsations which might readily have been those of a solid aneurism. In the tumour a murmur was heard. It was systolic in time, and not confined to the tumour, but was heard in the area of cardiac dulness, which was normal in position and extent. A second sound was also heard in the tumour, although there was no accentuation of it, such as is sometimes met with in aneurisms. The diagnosis I ventured to make of the case was that it was a tumour which had some connexion with the sternum between the first and second ribs. It was extending forwards, and to some slight degree backwards. The reason I thought there was very little extension posteriorly was, that so few symptoms of pressure showed themselves. On the 14th of November a sudden occurrence of dyspnœa took place, and she was almost suffocated at night. At the same time loss of voice set in, so she was unable to speak or call for the nurse. I found the next morning that she was unable to eat, and could hardly swallow. These alarming conditions continued for some days, and then began to abate. At the same time, œdema of the face and neck set in, chiefly, at first, about the neck, and extending up to the hyoid bone. Then her face began to swell, and, nearly three weeks afterwards, her arms, body, and labia were swollen. The legs were never engaged. About the same time she suffered from pain of another kind, shooting round the right ribs in the region where the diaphragm is attached, and which was afterwards explained by the engagement of the phrenic nerve in the tumour. These physical signs and symptoms gave rise to the belief that it was a case of aneurism, and my original diagnosis was greatly shaken by the variability of these alarming symptoms, which suddenly occurred and then disappeared. However, on watching the case to the end, I became in favour of my original view, as the pulsation, externally, was not com-

mensurate with the large size of the tumour, and its seeming superficiality. The girl's spirits were very good, but she required a great deal of anodynes to relieve the pain—a hypodermic injection of morphia being invariably required to obtain for her a night's rest. On the 9th of December, hæmoptysis set in, in addition to the other signs indicating pressure on the bronchial tubes, whereby the dyspnœa became most urgent. In a day or two afterwards hydrothorax was recognised on the left side. On the 26th of December, although her face was double its ordinary size, her neck swollen to an enormous extent, and her nose blue, and having something of the appearance as if gangrene were setting in, she was able to get up out of bed and sit in an easy chair; finding relief from that position, she did the same on the 27th; but feeling tired on the 28th, remained in bed. On that night she was observed to lean out of bed for the purpose of getting a drink from an adjoining table; and, immediately afterwards, she became very pale, and died within five minutes, being at the time under the observation of Mr. Woodroofe, our medical resident, to whom I am indebted for the unwearying care with which he watched the case, as well as for the present notes of it. I made a *post mortem* examination ten hours afterwards. The following measurements of the chest and neck show how very much enlarged the body was—viz., 16 inches round the neck, 36 inches round the chest across the top of the tumour, and 32 inches round it in the neighbourhood of the ensiform cartilage. On stripping off the skin, this mass presented itself, which was seemingly a tumour pressing against the skin; but, on section, it proved to be the subcutaneous cellular tissue blended with the altered tissue of the major and minor pectoral muscles, with a quantity of growth through them. The character of this is unchanged since the day I first made the section. You can see the mass of fibres in the pectoralis major is connected into a homogeneous whitish adenoid tissue. A similar formation exists on the right side, but not to the same extent. On passing upwards into the clavicle, I found that what on one day appeared to be a dislocation of the clavicle upwards is a deposit of the same growth in the sterno-cleido-mastoid. On cutting through the ribs and raising the whole, I could not separate the mass from the pericardium, so that I made a section with the scalpel through the whole tissue; and the bone was so broken down to the centre, that the knife passed through it all. We found the tumour about two inches beyond the sternum, and in front of the anterior wall of the aorta. It also passes down into the pericardium, thus resembling a case which Dr. Bennett showed here on a former day. The nodules extend to the surface of the pericardium, and have pressed upon the pulmonary and aortic vessels; and this pressure, doubtless, produced the systolic murmur. The right pulmonary artery is free from engagement. The left pulmonary artery is stopped, and a small probe will only pass into its primary branches. The heart itself is perfectly

free from all engagement. The superior vena cava is involved in the growth near the pericardium, and it is impossible to pass the finger more than half an inch up it. For the rest of its course it is completely occluded by the same white growth. The tumour has not only passed back through the entire mediastinum, engaging the ascending portion of the aorta, but has passed round it. Turning to the back, we find that the aorta is embedded in the growth, and likewise the innominate artery, the right carotid, and the left carotid, and subclavian, in the same way. The aorta, itself, is not diseased from the descending portion; but the ascending and transverse portions have undergone some atheromatous change, whether from the pressure produced by the tumour, or by the force of the blood against its walls, which, owing to its surroundings, could not yield. We found that the cause of the murmur was not in any of the valves, which are perfect, but by the pressure of the growth, for on passing the finger through the aortic orifice a ring was found constricting the vessel, and consisting of the same neoplasm. The tumour has involved in its course the right phrenic and the right pneumogastric nerves. On trying to trace the pneumogastric nerve, we find that it blends with the substance of the tumour, so that it is not easy to say which is the tumour and which is the nerve. In the same way, on the left side, we have the pneumogastric nerve and the recurrent laryngeal nerve involved in the tumour, both having passed into the tumour and become adherent to it. The œsophagus, strange to say, is not pressed on; but the dysphagia, which was so prominent a symptom, is explained by the fact that the anterior wall of the œsophagus is blended with the tumour at the bifurcation of the trachea, so that the muscles of the œsophagus were unable to continue their peristaltic action beyond this point. The disease seems to have confined itself entirely to the mediastinum, and by extension to the neighbouring surface of the pleuræ, for, on cutting into the pleura adjoining the mediastinum, we find its white substance extending through the pleura into the lung. The lung is, therefore, not engaged by direct absorption of the matter. The case is one of a tumour both outside and inside the sternum. Cases of tumours inside the sternum present many points like aneurism; but I cannot find either in the records of this Society, or in those of the Pathological Society of London, any case of a tumour both inside and outside the thorax simulating aneurism. A microscopic examination of the tumour, made by Dr. Reuben Harvey, who very kindly examined several specimens, shows that the tumour is of a lympho-sarcomatous character, consisting of a vast number of small lymph-like corpuscles. The bone is not the seat of any disease, but was undergoing decay from want of nutrition, occasioned by the pressure of the surrounding parts upon it. There are no large sarcomatous cells in any part of the tumour. It is worth noting that the sterno-clavicular articulation has wonderfully escaped all

engagement. The articular surfaces of the sternum and clavicle are perfectly smooth and covered with synovial membrane. The inter-articular-clavicular cartilages, in like manner, are unengaged. None of the lymphatic glands are enlarged beyond what would be expected in the neighbourhood of the formation of such a tumour. It may be a question of a speculative nature to inquire as to the original seat of the disease, but I am of opinion, and in this I am confirmed by Dr. Harvey, that the growth began in the cellular tissue behind the sternum, and it is probable the falls the patient experienced two years ago had something to say to its development.—*March* 10, 1877.

Renal and Aortic Disease.—Dr. Hayden said: On the 12th of last month, a man, aged thirty-eight years, a wine porter, of very intemperate habits, was admitted under my care. The history of his illness was as follows:—Up to last Christmas he had been in excellent health and able to do his work. He was a man of large stature. About Christmas, or shortly before, he began to suffer from shortness of breath. A fortnight before his admission to hospital he noticed that he had frequent calls to pass water. When I saw him there was dyspnœa; the radial arteries were rigid and tortuous, and pulsated visibly. There was, likewise, visible venous pulsation in the neck. Urine was passed in moderate quantity, specific gravity 1012, and containing about an eighth part of albumen. The apex pulsation of the heart was about an inch and a half to the left of the nipple line. There was a double impulse—one coinciding with the ordinary systole of the ventricles, and the other with the first period of ventricular diastole. There was likewise a doubling of the first sound of a very decided character—a phenomenon which has been recently discussed very warmly by some of our English *confrères*. The first element of the double sound was a dull knock or thud. It coincided with the pulse in the carotids, and likewise with the apex pulsation of the heart. The second part of the double sound was of a sharp clicking character. The man's nights were passed very indifferently; he had not much sleep; but under treatment, which it is unnecessary to detail here, he experienced some slight improvement in that respect. There were no further noticeable symptoms until the 23rd of the month, eleven days after his admittance. On the morning of that day I observed that he had well-pronounced Cheyne-Stokes' respiration. The characteristic periods of apnœa and dyspnœa, and the gradual and rhythmical slowing and quickening of respiration, alternately were exhibited. In the course of that night he had several attacks of dyspnœa, and in the morning spat up a quantity of florid blood. On the following day, the 24th, I took special note of the characteristic respiration, and the following was the result:—There was a period of complete suspension of breathing, or apnœa, which lasted for about 22 seconds. During those 22 seconds, the

chest was still, and there was not the most faint attempt at breathing; he was perfectly tranquil and free from distress of any kind, and looked quite happy. Then came a brief and shallow inspiration, which was followed by others of gradually increasing force and depth, and accompanied by restlessness and moaning, and an aspect of distress, till an acmo was reached, and then followed a gradual subsidence till complete apnœa was attained. During the first five seconds after the apnœal period I counted three acts of respiration. During the next period of five seconds there were four acts, during the next period there were five, then there were three, then two, then only one, and next came the period of apnœa again. With regard to the pulse, I may observe that there was not the slightest alteration in its rate, force, or regularity during the several periods of this cycle. The transition from apnœa to a rate of three respirations in five seconds was rather abrupt; whereas the process of descent to apnœa was gradual, the number of respirations decreasing slowly from five to total suspension of breathing. There was no œdema of the lower extremities. In the progress of the case crepitation was heard in the back parts of both lungs; he spat blood from time to time, and was more or less delirious for the few days preceding his death, which took place rather suddenly, on the 6th of this month. I may supplement what I have stated by observing that, as commonly happens in cases of the kind, the second sound in the aorta was remarkably sharp and ringing in character. From this circumstance, and from the presence of the remarkable phenomena I have mentioned, I ventured confidently to diagnose a dilated and atheromatised aorta. There was obviously a very much enlarged heart. The viscera are now before you. The liver is rather larger than usual, not remarkably congested, and otherwise normal. The right kidney is much enlarged, and weighs 13 ounces. It is structurally sound. I examined a section of the cortex under the microscope, and found no morbid change. The left kidney is atrophied, and weighs only 2 ounces. No portion of the structure of the organ remains except the pyramids, which stand out on the surface, the cortex or secreting structure having entirely disappeared. The pelvis and the infundibula of the kidneys are greatly enlarged and thickened. The lungs exhibited a condition which I was quite prepared to find—namely, a condition of sanguineous infarction, both being in this condition, but especially the posterior portions. The pulmonary artery was injected with dark coagulated blood. The other branches of the artery which permeated the lungs were free, thus proving the mode of origin of so-called "pulmonary apoplexy." The heart is large and weighed 36 ounces. The right ventricle is almost normal. It is, perhaps, rather attenuated than thickened. It contains a mass of decolourised fibrin, which descends from the right auricle, where it is entangled in the pectinate muscles. The left ventricle is greatly thickened, but not dilated; in some parts it is more than an inch

thick. The auricles are both normal. The valves are all normal and competent. The aorta is dilated and slightly atheromatous; its valves are competent. The interest which the case possesses has reference chiefly to the symptoms which I have mentioned—namely, the doubling of the first sound, the existence of a second or diastolic impulse, and the presence of the Cheyne-Stokes' respiration. In reference to the first of these I have repeatedly urged the opinion that it may be taken as proof of the existence of the form of hypertrophy of the left ventricle which has been designated simple hypertrophy—that is, thickening of the walls without change in the capacity of the cavity. This view is borne out by the organ before me. I believe it to be caused simply by the want of harmony between the stroke of the apex of the heart and the closure of the auriculo-ventricular valves, the former taking precedence, as is likely to occur when the left ventricle is thickened. Hence the "thud" which was the first element of the double sound, and which was followed by the sharp "click." This view is not generally accepted, but I mention it in connexion with the case. With regard to the second impulse it may be always taken as proof of the existence of a very large left ventricle—a ventricle so large that the simple expansion of its cavity coinciding with the influx of blood from the auricle is sufficient to bring it into forcible impact with the anterior wall of the chest. Hence the second impulse. As to the Cheyne-Stokes' respiration, many theories have been propounded, and I am not prepared to add to the number. I have stated elsewhere that, whatever may be the doctrine as to its pathology, this is certainly a clinical fact—namely, that it is always associated with a dilated and atheromatous aorta; and, therefore, regarded in the abstract, it is a very valuable means of determining the existence of that state of the aorta. I am glad to see that the views of Dr. Broadbent, of London, coincide with mine in this respect. The texture of the heart is perfectly sound, including that of both ventricles. The old doctrine, that the peculiar rhythmical dyspnœa known as "Cheyne-Stokes' respiration" depended upon fatty degeneration of the heart, is thereby set aside. Here is a case in which this phenomenon existed in a characteristic form, and in which, nevertheless, the heart is perfectly sound. This case is alone sufficient to disprove that theory.—*March* 24, 1877.

CLINICAL RECORDS.

Two Cases illustrative of the Clinical History of secondary Pleuritis in Phthisis. By John William Moore, M.D., Univ. Dubl.; Fellow and Censor, King and Queen's College of Physicians; Physician to the Meath Hospital and County Dublin Infirmary; Assistant Physician to Cork-street Fever Hospital.

I. Meath Hospital, Dublin.—*Chronic Effusion into the left Pleura with Dexiocardia; Thoracentesis performed on four occasions with a favourable Result.*

Timothy R., aged thirty years, a labourer, unmarried, resident in James's-street, Dublin, was admitted to the Meath Hospital on October 12th, 1876. He was originally of robust constitution, and had never to his knowledge suffered from illness until November, 1874. His family history was good. His habits were not altogether temperate. He never habitually smoked. He says he has been complaining since November, 1874, when he became subject to a troublesome cough, which continued throughout the winter. In April, 1875, he was struck by sudden and agonising pain in the left side, and there was a coincident shivering fit. About this time he used to spit a little blood occasionally. He took to bed, and was seen by a doctor, who told him his left lung was "gone." He kept his bed for three weeks, towards the end of which time he began to notice a "splashing" in his side if he used any exertion or moved suddenly in bed. This symptom lasted for a month. Two months later—that is, in June, 1875—his heart was observed to beat at the right side, and his breathing became shorter. In August his voice failed, after being in a fog. The appetite failed, and a serious loss of flesh occurred. He became unable to lie on the *right* side, because the attempt to do so brought on coughs and made him feel as if choking. Gradually swelling of his feet and even of his body set in when he walked. However, on his admission to hospital, there was no œdema of any consequence. The urine also, which was high-coloured, was free from albumen.

State on admission.—He is of large build, 5 ft. 11½ ins. in height, with a pallid, even anæmic aspect. He has evidently wasted considerably of late. His present weight is 10 st. 8 lbs., whereas he used to weigh 12 st. 4 lbs. The axillary temperature is almost normal—viz., 98·8°. His pulse 76, and respirations 24. A frothy clear expectoration comes up with rather a teasing cough. The tongue is tolerably clean; appetite

bad. He sleeps indifferently. There is no excessive sweating. The bowels are regular.

Physical examination.—Absolute dulness on percussion exists all over the left side of the chest in front and posteriorly. There is very trifling expansion on that side. The ribs, posteriorly, are widely separated, and the intercostal spaces bulge forward, especially below the scapula. On auscultation but little is heard beyond some "veiled" tubular breathing over the root of the lung. There is little or no vocal fremitus, and the heart's sounds are inaudible, or nearly so. Tympanitic dulness exists over the *right* apex, where the breathing is essentially puerile. The absolute dulness of the left side extends well to the right of the sternum. The cardiac impulse is observed at and above the right nipple, and here, too, the heart's sounds are clearly heard. The measurements of the two sides at the nipple are about equal.

Diagnosis.—Extensive left pleural effusion, with dexiocardia and stretching of the recurrent laryngeal nerve—hence the hoarseness or partial aphonia.

On October 17, after five days' rest, I performed thoracentesis in the 8th left interspace, about $1\frac{1}{2}$ inches within the angle of the scapula, and drew off by means of the aspirator devised by Dr. Vald. Rasmussen, of Copenhagen,[a] 68 ounces of opaque, straw-coloured serum; spec. grav. 1020. Under the microscope the fluid was found to contain some flakes of lymph and a very few mucus corpuscles with vibriones. The aspiration was stopped, owing to the occurrence of cough. The *right* lung did not expand freely, and an overwhelming sense of oppression was caused by the indrawing of the intercostal spaces on that side, as the pressure of the fluid was removed. Air was found to have entered the *left* apex pretty freely, for over it a tympanitic dulness had taken the place of the absolute dulness, and a subcrepitus was now audible. I had little doubt that of the two lungs the left had made more successful efforts to expand with the removal of the pressure than the right. The fit of coughing seemed to be due to the entrance of cold air into the unaccustomed bronchial tubes of the left lung. After the operation his voice sounded much clearer in the upright position. In the evening the temperature rose from 97·7° to 99·0, but the respirations fell from 28 to 22. The stomach became greatly distended with gas or air, owing to the removal of pressure—a troublesome symptom, which yielded, however, to anti-flatulent remedies.

November 2, 1876.—He has been very well since the last report. His voice is decidedly better; he coughs less frequently; the sleep has improved; and his appetite has returned. Under these circumstances, I tapped him again to-day almost in the same place as before, and drew off 78 ounces of opaque serum, with a specific gravity 1022. Many flakes

[a] See Dubl. Journal of Med. Science. Vol. LII., page 60. August, 1871.

of lymph floated in the fluid. The aspiration of the effusion was again stopped, when a sense of oppression of the chest was complained of and cough commenced. The feeling of constriction over the right side was very unpleasant, but he soon recovered from it. Towards night, the stomach swelled as it had done after the first operation, so that the percussion sound was tympanitic up to the nipple. The absolute dulness over the left apex had now given place to a "cracked-pot" sound, and there was marked pectoriloquy under the clavicle. The heart came back slightly from its position above the right nipple; the seat of maximal impulse was $1\frac{1}{2}$ inches to the left of its former situation. Next day the stomach was much distended. Air was found entering the left lung, although by no means freely.

November 15, 1876.—He was this day put on 5-grain doses of iodide of potassium, with liquid extract of bark in chloroform water. [After a few days slight symptoms of iodism led to the suspension of this medicine, but he subsequently took it off and on up to February 20, 1877.]

November 30.—To-day aspiration was practised for the third time, and 89 ounces of serous fluid were drawn off. There was scarcely any cough, but an oppression across the chest obliged us to stop the aspiration. Immediately afterwards the heart was found to have returned $2\frac{1}{2}$ inches towards the left. The impulse was felt under the left half of the sternum. There was little or no fever; the evening temperature was only 99°. At 10 p.m. his stomach "filled with wind," which kept him awake.

December 1.—The heart now beats in the left parasternal line; the impulse being felt in the 5th intercostal space as the patient lies on his left side. There is tympanitic dulness over the left apex, with marked voice-conduction and tubular breathing. The right lung expands very freely, and even the left lung expands fairly.

Shortly after this, T. R. left hospital. On January 1, 1877, he was re-admitted. Physical examination showed that the effusion was collecting indeed, although very slowly; the heart had not passed further to the right than the mid-sternum; but the dulness on percussion over the left apex had again become complete. On January 9, the fourth and last tapping was performed. Sixty-seven ozs. of opaque serum, spec. grav. 1020, were drawn off without causing cough or oppression. The circumference of the chest at the nipple line was now $36\frac{1}{4}$ inches—*i.e.*, 18 inches on the right, and $18\frac{1}{4}$ inches on the left side.

He went on very well until January 24, when he had a shivering fit, and his stomach got sick. This proved to be the commencement of a severe attack of simple continued fever—the temperature rising to 104·2° on the evening of the 4th day. There were no chest symptoms during this anxious illness, and he was fast regaining flesh and strength, when he finally left the Meath Hospital at the end of February, 1877.

He weighed, on February 20, 11 st. 12 lbs. with his clothes on. For a man of his height the typical weight is 12 st. 8 lbs.

Remarks.—The probable sequel of events at the beginning of this man's illness would be an interesting subject for inquiry. Dr. James Little, who kindly visited and examined the patient with me, suggested that, possibly, the case was one of phthisis *cured* by the occurrence of extensive pleural effusion. We have a primary history of catarrhal pneumonia, attended by loss of flesh and weight, and by slight hæmoptysis. A cavity in the left lung probably existed when an attack of pleuritis, followed by rapid and extensive effusion, stayed the process of destruction in the affected lung, and saved the patient's life. The record of the treatment, by thoracentesis, of this pleural effusion, even after it had existed for 18 months, is full of encouragement to the clinical physician.

II. Cork-street Fever Hospital.—*Phthisis Pulmonalis; Perforation of Pleura; Pneumothorax with Pleural Effusion; Death.*

Joseph N., aged thirty-four years, a porter by occupation, was admitted to hospital on the afternoon of Tuesday, September 4th, 1877. He was a man of rather intemperate habits, and his present illness was attributed to exposure to cold while under the influence of liquor. It appeared that he was tolerably well up to Sunday, September 2nd, when he shivered, and was attacked by severe pain in the back and in the lower part of the chest on the right side. He had also intense headache, with constipation. It was subsequently ascertained that he had suffered from a similar attack three months previously. On the evening of his admission, the axillary temperature was 103·4°, his pulse was 146, and his respirations were 46 in the minute.

Wednesday, September 5 (4th day).—At 11.30 a.m. I saw him for the first time. He had spent a restless night, and was evidently most seriously ill. His lips were blue, countenance livid, face bathed in a clammy perspiration. He was breathing 40 times a minute—the respiration was gasping in character, and apparently very distressful. His pulse was 132, of fair strength, and the temperature was 102·2°. The carotid arteries were pulsating visibly, the external jugular veins were permanently full, and the superficial veins generally were more or less turgid. Physical examination showed that the expansion of the right side of the chest was much less than that of the left side. The impulse of the heart was well marked; there were no abnormal cardiac sounds. The percussion sound over the right apex was exceedingly clear, while over the base, both in front and behind, it was almost quite dull. In the right subaxillary region a rough pleural friction sound, intermingled with tubular breathing and some fine crepitation, was heard; posteriorly there were decided vocal resonance and bronchophony

approaching to œgophony. Over the right apex the respiratory sounds were practically inaudible, but the heart sounds were tolerably distinctly heard. The respiration in the left lung was puerile, and loose crepitating râles existed posteriorly. *There was little or no expectoration*, but a frequent, stuffy cough caused him no little distress.

Diagnosis.—The history of the sudden onset of the patient's illness—with headache, constipation, and intense pain in the back and right side—together with the physical signs just mentioned, led me to regard the case as one of acute pleuro-pneumonia of the right base. The dyspnœa, high temperature, great arterial excitement, and venous congestion seemed to indicate a rapid extension of the pneumonia, and I believed that the heart and left lung were suffering from the sudden and unwonted strain put upon them.

Treatment.—Acting upon the foregoing supposition, and having regard to the patient's age and physique, I determined to bleed him moderately, while I supported his strength by nourishment and quinine. Accordingly, 7 ozs. of blood were taken from the right arm by venesection. After the operation he expressed himself relieved, the rate of the pulse and respirations fell somewhat, the dyspnœa decreased, and he felt sleepy. He was ordered strong beef-tea, milk, 2 eggs, and 4 ozs. of whiskey for egg-flip, turpentine punch, and 5 grains of quinine every third hour. The right side of the chest to be kept enveloped in a jacket poultice. The blood drawn did not become "buffed and cupped."

5.30 p.m.—The temporary improvement after the venesection had passed away. He was low and restless—pulse, 128; resp., 40; temp., 103·8°. The stimulants were increased to 8 ozs. of whiskey in the 24 hours.

Thursday, September 6th (5th day).—He slept from midnight to 3 a.m., but the remainder of the night was passed restlessly and without sleep. Temperature still ran high; the pulse was as quick as ever, while the same jerking and difficult breathing persisted. There was no apparent change in the physical signs, but his prostrate condition forbade a searching clinical examination. There was still no expectoration; and as he objected strongly to the turpentine punch, 3-grain doses of carbonate of ammonia, with diffusible stimulants and tincture and infusion of bark, were substituted for it. The quinine was meanwhile continued. No change occurred during this day.

Friday, September 7 (6th day).—He is reported to have had no sleep last night. The bowels are regular and the tongue is moist and cleaner. He expresses himself better, although the morning temperature is 102·8°. The pleural friction and fine crepitation over the right base, where the dulness on percussion is very complete, have disappeared; and the bronchophony is well marked. At the suggestion of my colleague, Mr. Wharton, he was put on moderate doses of blue pill, a little Dover's

powder and quinine being combined with it. The left side was ordered to be dry-cupped, in consequence of the increase of crepitating râles over the base of the left lung.

Saturday, September 8 (7th day).—Another bad night. Diarrhœa has set in, so yesterday's pills are discontinued. My colleague, Dr. R. J. Harvey, examined him with me to-day. The physical signs were unchanged, except that the abnormal clearness and the absence of respiratory sounds over the right apex were intensified, while the heart's sounds were still audible in this situation. The explanation of these signs caused much anxious deliberation. They were believed to depend on either (1) a pneumothorax, or (2) a diminished tension of the pulmonary parenchyma, caused by the neighbouring hepatisation and pleural effusion. No positive conclusion was arrived at. As he was very sleepless at night, eight grains of Dover's powder were ordered to be taken at 9 p.m.

Sunday, September 9 (8th day).—He is in much the same state, but in some respects there is an improvement. He enjoyed some sleep. At his own request, 6 ounces of port wine were substituted for the whiskey. He was ordered 10 grs. of Dover's powder at night.

Monday, September 10 (9th day).—Shortly before my visit to-day J. N. became very ill. A difficulty of breathing, extreme lividity of the face, and cold perspiration were the leading symptoms in an attack which threatened to prove fatal. He soon recovered. I found also that the diarrhœa was increasing, so he was ordered diffusible stimulants with chlorodyne and chalk mixture. Crepitating râles were plainly audible over the left base. We, therefore, dry-cupped the back of the chest, the poulticing being diligently and persistently kept up.

During the following two days he seemed to make slow progress towards recovery, but early on the morning of September 13 a second syncopal attack proved fatal in about two hours.

Post mortem examination.—Five hours after death, Dr. R. J. Harvey made a careful examination, more particularly of the chest and abdomen. The body was fairly nourished. The wound inflicted in performing venesection had healed. There were sudamina over the chest. On opening the abdomen, about six ounces of clear, straw-coloured serum were found in the peritoneal cavity. The liver, which was considerably enlarged and congested, was displaced downwards to a marked extent. The inferior margin of its right lobe ran in the direction of a line drawn from the middle point of the crest of the ilium through the umbilicus. The division between the right and left lobes occupied the mesial line. The inferior margin of the left lobe ran horizontally outwards to touch the cartilage of the eighth rib. The liver concealed a good deal of the stomach. The diaphragm was displaced downwards, passing almost horizontally backwards from its attachment in front.

On raising the sternum, on the right side, the knife passed into the pleural cavity, which contained air and fluid. The right lung was completely collapsed. In the corresponding pleural cavity there were about 50 ounces of serum. Lymph in dense, honey-combed layers was deposited over the lower portion of this pleura. There were some old adhesions in the left pleura. In the pericardium some recent localised effusions of lymph were found. Depositions of tubercle had taken place in the apices of both lungs, especially in the right apex, where a cavity about as large as a hazel-nut existed. This cavity communicated anteriorly with the right pleural cavity through a partly valvular aperture in a plate of cartilage-like tissue. The heart was practically healthy; all its chambers were more or less filled with clots and fluid blood. Slight atheromatous deposits had occurred in the aorta.

Extensive fatty changes had taken place in the liver. The spleen showed evidences of hypertrophy of the connective tissue. Except for a certain degree of passive congestion, the kidneys were structurally sound.

Remarks.—It cannot be denied that the *post mortem* appearances threw a flood of light on the nature of this case, and in many respects falsified the diagnosis made during life. Thus, the man's illness was not pneumonia. The physical signs of pneumonia during life were due to the advancing collapse of the right lung, aided by the binding down of its lower lobe to the posterior chest-wall by dense pleural adhesions. There was pleuritis no doubt, but it depended on the occurrence of pneumothorax, when a communication was effected between an unsuspected cavity in the apex of the lung and the pleural cavity. The history of pulmonary tuberculosis did not at all crop up during the man's life. It was only after death that we learned from the patient's sister that he had suffered from a similar illness three months previously, and had been for some time an "ailing" man. The diagnosis of pneumothorax was rendered uncertain by the audibleness of the heart's sounds over the right apex, and by the supposed existence of pneumonia. The presence of a large pleural effusion was masked by the conduction of the breath and voice sounds through the adherent lower lobe of the right lung and the firm layers of lymph effused in the neighbouring pleural cavity.

A question arises as to the influence of the venesection on the progress of the case. Had I known that the primary affection was pulmonary tuberculosis, I would have hesitated very long before depriving the patient of even seven ounces of blood. That this bleeding relieved symptoms, however, is clear; and that it did not kill the patient, or, indeed, materially accelerate his death, is shown by the fact that this event did not happen for nine days after the operation, and by the pathological conditions found after death.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, M.D., F.K.Q.C.P.

Vital Statistics

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, September 8, 1877.

Towns	Population in 1871	Births Registered	Deaths Registered	Deaths from Zymotic Diseases							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhœa	
Dublin, -	314,666	713	547	—	20	8	1	9	10	26	22·6
Belfast, -	182,082	483	312	1	3	5	2	2	18	23	22·5
Cork, -	91,965	180	144	—	—	—	—	—	8	3	20·3
Limerick, -	44,209	107	69	—	—	4	—	—	1	6	20·5
Derry, -	30,884	64	37	—	—	—	—	—	—	—	15·8
Waterford, -	30,626	64	33	—	—	—	—	—	5	1	14·0
Galway, -	19,692	35	24	—	—	—	—	—	2	—	15·8
Sligo, -	17,285	28	31	—	—	—	—	1	4	2	23·3

Remarks.

The death-rate was generally moderate or low. In London it was 18·4 per 1,000 of the population annually, in Edinburgh 15·9, and in Glasgow 20·4. In Dublin, omitting the deaths of persons admitted into public institutions from localities outside the district, the rate was 21·7 per 1,000. The decrease in the number of deaths due to zymotic affections continued—only 91 deaths being registered, compared with 105 in the previous four-week period. Measles and fever have declined, whereas scarlatina, whooping-cough, and diarrhœa show a decided increase. The mortality from diarrhœa was, however, far below the average, owing to the absence of summer heat and the abundant rainfall. The deaths from this disease were only 26, against an average of 60·8 in the corresponding period of the previous ten years. Measles was very fatal in Blackrock in August, having caused 13 out of the 20 deaths registered in that month. Fever and diarrhœa show a marked increase in Belfast, where the epidemic of measles has declined. The fever-deaths in Dublin were only 3 from typhus, 4 from enteric, and 3 from

simple continued fever. Scarlatina caused 4 deaths in Limerick. Small-pox caused 60 deaths in London, compared with 104, 143, 243, 291, and 292 in the preceding periods. Diseases of the respiratory organs were fatal in 68 cases in Dublin—bronchitis causing 51 deaths, and pneumonia 12 deaths, against an average of 34·2 and 8·9 respectively in the corresponding period of the ten years, 1867–76 inclusive.

Meteorology.

Abstract of Observations made at Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of August, 1877.

Mean Height of Barometer, - - -	29·829 inches.
Maximal Height of Barometer (on 11th at 9 p.m.), -	30·130 „
Minimal Height of Barometer (on 8th at 9 a.m.), -	29·182 „
Mean Dry-bulb Temperature, - - -	58·2°
Mean Wet-bulb Temperature, - - -	55·6°
Mean Dew-point Temperature, - - -	53·2°
Mean Elastic Force (Tension) of Aqueous Vapour, -	·407 inch.
Mean Humidity, - - - - -	84·0 per cent.
Highest Temperature in Shade (on 19th), - -	70·8°
Lowest Temperature in Shade (on 23rd), - -	42·9°
Lowest Temperature on Grass (Radiation) (on 23rd),-	38·6°
Mean Amount of Cloud, - - - -	71·5 per cent.
Rainfall (on 24 days), - - - -	3·536 inches.
General Direction of Wind, - - -	W. and N.W.

Remarks.

August proved to be almost the counterpart of July—a cloudy, changeable, cool, and rainy month. Only from the 11th to the 14th was the weather in any sense settled. During that period the barometer was comparatively high and steady, and a light easterly air-current prevailed with dry and pleasant weather. On the forenoon of Wednesday, the 15th, dense clouds formed in the neighbourhood of Dublin, and very heavy "planet" showers, accompanied by thunder and lightning, occurred at noon, 2 p.m., and 4 p.m. The rainfall on this day was insignificant at Fitzwilliam-square (only ·070 inch up to 9 p.m.), but immense at Kingstown (·810 inch), Monkstown (1·540 inches), and in the western districts of Dublin (·681 inch at the Ordnance Survey Office, Phœnix Park). On the afternoon of Sunday, the 19th, a brilliant sun and S.W. wind raised the temperature in the shade to 70·8°. This was the only occasion on which the thermometer reached 70° in Dublin city during August, 1877. A deep depression travelled north-eastwards across the British Islands on Tuesday, the 21st. As its centre moved away a considerable fall of temperature occurred, so that on Wednesday night the

shade thermometer in Dublin fell to 43°, and on Thursday night temperatures as low as 38° and 39° were recorded in central England. The clear skies attending the north-westerly winds in the rear of this disturbance afforded a splendid opportunity of observing the remarkable total eclipse of the moon on the evening of Thursday, the 23rd.

PERISCOPE.

Edited by G. F. Duffey, M.D., F.K.Q.C.P.

MEANS OF ARRESTING HÆMORRHAGES.

M. Créquy proposes, in cases of severe epistaxis, to substitute for the ordinary plug—the application of which to the posterior nares is often so difficult—the following mode of injecting perchloride of iron, whereby the full styptic effect is secured without the dangers with which the use of that remedy is not infrequently attended. An ordinary syringe is fitted with a canula about $2\frac{1}{2}$ inches long, terminating in a rounded extremity, and perforated throughout its length by a series of small holes, spirally disposed, and directed backwards, so as to emit small retrograde jets. When the canula is introduced horizontally into the nasal fossa, and the syringe filled with a solution of perchloride of iron, the injected fluid is thrown upon the mucous surface, and does not fall upon the pharynx or stomach. Generally one injection is sufficient. For hæmorrhages in general, and especially for metrorrhagia, M. Ricord finds injections of hot water at 50° centigrade (122° Fahrenheit), applied through a tube to the neck of the uterus, to be an almost infallible mode of arrest.—*L'Union Médicale.*

S. W.

SUCCESSFUL CASE OF TRANSFUSION.

At a meeting of the *Philadelphia Obstetrical Society* on February 1, Dr. A. H. Smith presented for Dr. Stokes, of Moorstown, N. J., the history of a case of transfusion in a boy nine years of age. The patient was suffering from an attack of typhoid fever, which ran the ordinary course until the middle of the third week. He then began to bleed freely from the nose and gums, and to pass blood with his urine. The flow from the nose and gums was stopped by Monsel's solution, but would break out afresh on the slightest provocation. Every passage of urine contained, as nearly as could be judged, from two to five ounces of blood. Numerous petechial spots, varying in size from a silver dime to a half dollar, appeared on the skin. Despite the use of iron, alum, and gallic acid, the hæmorrhage continued unabatedly for seven days, when transfusion was

determined on. Two and one-half ounces of the father's blood were injected into the median vein of the right arm. The oozing from the nose and gums stopped almost immediately after the operation, and urine passed half an hour afterwards contained neither blood nor albumen. On the second day after the operation the patient was exceedingly prostrated, and there was some bleeding from the nose, which, however, was readily checked by a spray of equal parts of Monsel's solution and water. The improvement was subsequently rapid, and in three weeks the patient was able to go down stairs. The influence of the operation on the hæmorrhages in this case cannot be denied. It is an important point, however, that the urine which was passed half an hour after the operation, and which contained neither blood nor albumen, had been collecting in the bladder for two hours before the operation. The fact that the blood transfused was defibrinated, is of interest in view of the opinion of Lesser (*Boston Medical Journal*, June 26, 1876), that the transfusion of defibrinated blood has no influence in arresting transudation from bleeding surfaces, but is only useful in restoring the nutritive fluid when the drain has been stopped.—*American Journal of Obstetrics*, April, 1877, and *N. Y. Med. Record.*

THORACENTESIS.

M. Guéneau de Mussy lays stress on compressing the thorax in cases of tapping the chest, in order to obviate the hyperæmia and œdema of the lungs, which would ensue when the vessels are relieved of the pressure of the pleuritic effusion. With this object he directs that during puncture an assistant should compress the thorax with his hands, and after the operation a tight binder should be applied. This method has the further advantage of checking the violent fits of coughing which usually attend and follow the operation. [The reporter in the *Centralblatt* (No. 24, 1877), Dr. Litton, states that this has always been the practice of the Breslau General Hospital.]

J. M. F.

CAMPHOR-VAPOUR BATHS.

A case of well-marked Bright's disease, treated by Dr. Sawyer, of Birmingham, is briefly referred to in *The British Medical Journal* of July 14. In addition to the administration of perchloride of iron and compound jalap powder, a bath of camphor-vapour was administered every night. This bath, which produced copious perspiration, was given in the following manner:—The patient was seated upon a cane-bottomed chair, with a large blanket pinned round his neck. Half an ounce of camphor was placed upon a tin plate under the chair and above the flame of a small spirit-lamp, by the heat of which the camphor was slowly vaporised. The condition of the urine steadily improved and the

œdema steadily diminished. The man was discharged a month after admission into hospital. All the œdema had gone; the urine showed no casts, and contained only a trace of albumen. Dr. Sawyer also employs camphor fumigation in some cases of convalescence from acute or subacute rheumatism, where the action of the skin is defective, and where there remain some pain and stiffness of the joints.

HYPODERMIC INJECTIONS OF NITRATE OF SILVER.

M. DE DENTU has employed with success these injections, not only in cases of obstinate neuralgia and sciatica, but for the purpose of allaying pain, no matter to what cause it may be due, and especially in cases of arthritis. Two or three drops of a strong solution (1 in 5) are injected into the cellular tissue; sharp pain at once follows, and at the end of three or four days a small abscess is formed, while the painful symptoms of the original malady have either diminished or disappeared. The abscess he has never found to be attended with any serious consequence, and if opened on the fourth or fifth day it will speedily heal. He believes that in cases where Vienna paste, red-hot iron, or other caustics are used, the nitrate of silver injections would be found much superior in efficacy.—*L'Union Médicale.*

S. W.

THE EMPLOYMENT OF CATGUT TO STOP BLEEDING FROM BONES.

DR. RIEDINGER, in a paper with the above title, calls attention to the difficulty that is often experienced in checking hæmorrhage from the nutrient vessels of the bones after amputations and resections. Cauterisation does not always succeed, and the introduction of small tampons of wax is contrary to the principle of antiseptic dressings. He recommends, as a substitute, the introduction of one or more bits of catgut into the vascular canal until it is completely obliterated. This is a method which he has himself employed with success, the hæmorrhage being arrested at once. One great advantage of the catgut is that it is completely absorbed from the midst of the tissues, and does not interfere in the least with union by first intention. This has been proved by experiments made on dogs.—*Centralblatt für Chirurgie*, No. 16, and *N. Y. Med. Record.*

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XIII.—*Records of Operative Surgery.* By WILLIAM STOKES, F.R.C.S.; Professor of Surgery, Royal College of Surgeons, Ireland; Surgeon to the Richmond Surgical Hospital; Examiner in Surgery to the Queen's University in Ireland; Member of Council, Royal College of Surgeons, Pathological, and Surgical Societies of Ireland; Fellow of the Royal Medico-Chirurgical Society of London, &c., &c.

I.—EXCISION OF THE SHOULDER-JOINT.

II.—AMPUTATION AT THE SHOULDER-JOINT.

III.—EXCISION OF THE KNEE-JOINT.

IV.—EXTIRPATION OF THE TONGUE; MODIFICATION OF COLLIS'S OPERATION.

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VI.—HARE-LIP; AUTHOR'S OPERATION.

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VIII.—OPERATION FOR THE REMOVAL OF DEFORMITIES RESULTING FROM A SEVERE BURN.

IX.—TABULAR VIEW OF SURGICAL OPERATIONS PERFORMED BY THE AUTHOR DURING THE PERIOD 1872–76, INCLUSIVE.

I DEEM the following cases of surgical importance, and feel confident that they will be considered as such by those who take an intelligent interest in the progress of operative surgery.

I.—*Excision of Shoulder-joint.*—The statistics of this operation are, as is well known, most favourable. In one hundred and sixty-nine cases of excision of the shoulder—collected by Professor Heyfelder, of St. Petersburg—performed as well for disease as injury, there were only thirty deaths, giving a mortality of eighteen per cent.; and Mr. Hodges gives a table of fifty cases in which the operation was performed for disease alone, and of these there were eight deaths, giving a mortality of sixteen per cent.

In the case I am about to record, I performed the operation for disease, and I am not aware of any instance in which a more signal success has been obtained :—

Mary M'D.,[a] aged twenty-four, by occupation a housemaid, was admitted into the Richmond Surgical Hospital, under my care, on October 21, 1874, suffering from severe pain in, and partial ankylosis of, the right shoulder-joint. She had been suffering, previous to her admission into hospital, for a period of twelve months, and she attributed her ailment to a fall down a flight of stairs, which, through accident, she had sustained. After this fall the joint swelled greatly, and she suffered also from great pain. The swelling after a time subsided, but the pain continued. This was of a darting, shooting character, and so severe that, to use her own words, "she never got rest by day or night." About a month before admission into hospital an abscess formed, which opened in the axilla and continued to discharge a thin sanious matter up to the time of her admission. On probing the sinus through which the matter exuded, the instrument struck bone, which was hard, but apparently denuded of soft tissue. The bone the probe struck against was clearly the head of the humerus. All motions of the arm were attended with extreme pain, so acute as to make her scream when the limb was stirred. There was considerable atrophy of the muscles of the arm. The condition of the patient was such as to completely prevent her from following any occupation, and to her mind there was no alternative to the removal of the limb but a life of suffering and misery in a workhouse hospital.

The patient was much exhausted by her sufferings, but otherwise in good health, and among her near relations there was no evidence of the existence of any strumous diathesis.

On making a careful examination of the patient, I formed the opinion that the condition of her shoulder was not the result of a carious, but of an ulcerative process affecting the cartilages of the joint, and that the ankylosis was probably due to the formation of adventitious fibrous bands

[a] The particulars of this case were brought under the notice of the Surgical Society of Ireland, on November 26, 1875.

which held the bones firmly together. My colleagues took a similar view of the case, and agreed with me that resection of the joint was the operation indicated.

On November 4th I performed the operation, adopting the single line of incision, commencing midway between the coracoid and acromion processes, and carrying it downwards and slightly outwards for a distance of about four inches and a half. By this incision I came directly on the bicipital groove, and the long head of the biceps, being detached, was held aside. Owing to the extreme fibrous ankylosis present, the detachment of the muscles from the tuberosities was attended with considerable difficulty, for no rotation, inwards or outwards, could be employed to put them on the stretch. For their division, as well as for that of the adventitious fibrous bands alluded to before, I found Syme's knife—the one usually used in amputation at the ankle-joint—a most serviceable and convenient instrument. After a considerable amount of somewhat difficult dissection, the upper end of the bone was sufficiently freed to admit of its being protruded through the wound, and the head, which was found completely denuded of cartilage of incrustation, was then removed. A similar condition was observed in the glenoid cavity, but the bones, though rough, were firm and hard. Hæmorrhage from two small vessels was arrested by torsion, but no ligature had to be applied. The loss of blood was, in truth, very trifling. The edges of the wound were then brought together by numerous points of interrupted carbolised catgut suture, except at the inferior extremity, which was left open; into this a piece of lint, soaked in carbolised oil, was inserted, and a conical-shaped pad, with its base above, was placed in the axilla, and the arm securely bandaged to the side.

It is unnecessary to describe the daily progress of this case after the operation. I may state, however, that the acute and violent starting pains, which had caused so much distress, completely subsided, and never returned. The healing of the wound was very protracted, and it was not until the early part of January that I was enabled to commence the use of passive motion. This was not well borne at first, but she soon got used to it, and, in a short time, got such power with the arm that she was enabled to render considerable assistance to the nurses of the ward in which she was located. So able and willing was she to render voluntary assistance in the hospital, that in the month of April, on a vacancy occurring among the wardmaids, she was appointed to take her place, in which capacity she had to scour floors, clean fire-places, make beds, &c.—and, in fact, perform all the duties of her former vocation. In this capacity she remained for a year and a half, when, unfortunately, owing to some irregularity in her conduct, her services had to be dispensed with.

A remarkable feature in connexion with this case is the short time

that elapsed between the period of the operation and that at which good use of the arm was obtained. The operation was performed on November 4th, and the patient obtained her appointment as wardmaid in the hospital during the following April—a period of five months. Mr. Hodges states "that the average length of time before some use of the arm was commenced, as calculated from thirty-one of the cases in my table, was over four months; and a much longer period than this was required, however, to elapse before the limb could be said to become really serviceable."

In the accompanying illustrations, from photographs taken subsequent to the operation, one represents the patient engaged in sweeping a floor—one of the duties she had to discharge as wardmaid; the other illustrates the length and direction of the line of incision I made.

Amputation at the Shoulder-joint.—As this operation is not one of very frequent occurrence in civil practice, the particulars of the following case will, I trust, be considered worthy of record:—

John L., aged thirty, by occupation a weaver, was admitted into the Richmond Surgical Hospital, under my care, on November 11th, 1874, suffering from severe pain in, and enlargement of, the right humerus. During the previous February he had sustained a very severe compound comminuted fracture of both bones of the forearm, the result of a machine accident, which necessitated amputation of the forearm. At this time he was working in a factory in or near Dundee, in Scotland. The patient remained in hospital for eleven weeks, and then returned to Ireland, the wound having completely healed. In July he met with an accident in Dublin. While walking in the street, he was knocked down by a horse, and fell heavily on the stump of the amputated arm. From this time dated the commencement of the disease which eventually necessitated the second amputation. On examination I found the humerus was enormously enlarged. The weight of the hypertrophied bone, as well as the continual pain in it, gave him great distress—so great was the latter that it was only by the repeated administration of morphia injections that any relief could be obtained. I looked on the case as one of traumatic osteitis, followed by hypertrophy, and probably peripheral and central necrosis. In this view my colleagues agreed. There was no difference of opinion either as to what operation would be likely to be attended with the best results to the patient, and accordingly amputation at the shoulder-joint was agreed upon.

On November 19th I performed the operation. Pressure being made on the subclavian artery above the clavicle, I commenced by making a semilunar incision, with the convexity downwards, from about half an inch external to the acromion to a point immediately below the coracoid process.

Drawn from a Photograph

Forster & Co., Lith., Dublin.

MR. STOKES ON EXCISION OF THE SHOULDER JOINT.

The large flap I then rapidly dissected upwards, and threw it backwards. The head of the humerus was then rotated outwards, and the insertion of the subscapularis exposed and severed. The capsule and insertion of the muscles into the great tuberosity were then quickly divided, and the head of the bone at once liberated. A large amputation knife was then passed behind the head of the bone, and a short postero-lateral flap was formed, the incision being made from behind forwards and downwards. Owing to the effectual manner in which the subclavian artery was compressed, there was very little hæmorrhage. A silken ligature was applied to the axillary artery, but all other bleeding vessels were secured by carbolised catgut. A solution of chloride of zinc was then applied to the wound, and, wire sutures having been inserted, carbolic acid dressings were applied. In the evening the patient's pulse was 100; temperature, 100·4°.

Nov. 21st.—Patient quiet; no bad symptom has supervened; dressings were removed to-day; wound looked healthy; carbolic acid and oakum dressings again applied.

26th.—Very little suppuration on removal of dressings; pulse, 98; temperature, 100·8°.

Dec. 5th.—Patient complains of some pain in the shoulder; this was found to be due to a cutaneous irritation—owing, probably, to the irritant action of carbolic acid. A light poultice to be applied, to be followed after by an application of cold cream. Pulse, 84; temperature, 99·4°.

10th.—Still improving. Cutaneous irritation has quite subsided; wound healing rapidly.

17th.—Patient much better. Pulse and temperature normal.

Shortly after this the patient returned home, the wound being perfectly healed. Some months subsequently, however, I learned with regret that symptoms of Bright's disease supervened, and to this disease the patient eventually succumbed.

The diseased humerus—a very interesting and valuable preparation of which was made by my friend, Dr. J. Barker—exhibits a remarkable example of hyperostosis, peripheral and central necrosis. It has been considered well worthy of a place in the Pathological Department of the Museum of the Royal College of Surgeons.

Excision of the Knee.—The following case of complete osseous ankylosis, the result of inflammation and suppuration in the knee, and in which I performed a resection, *en bloc*, of the ankylosed joint, is of interest in a twofold point of view. In the first place I had to deal with a complication which I have not met with before in knee-joint resections—viz., secondary reactionary hæmorrhage

from the *cut surfaces of the bones*, which set in shortly after the performance of the operation. Whether the pathological changes consequent on the inflammatory action in the bones entering into the knee-joint, or the application of Esmarch's elastic bandage previous to the operation, or any other as yet unascertained cause, indirectly induced the hæmorrhage, I am not in a position at present to say ; but the complication was a very grave one, was a source of much anxiety to those attending the patient, and necessitated a re-opening of the wound some hours subsequent to the operation. Fortunately, however, the measures adopted were successful in checking the hæmorrhage, and no other accident afterwards occurred to interrupt or retard the recovery of the patient. The case is also of interest as it illustrates the great advantages of the gypsum splint introduced by Mr. P. H. Watson, and modified and improved by Mr. Hayes.[a] No appliance that I am aware of can secure such absolute immobility of the limb, and the difficulty of obtaining this is, as is well known, the great defect in all other appliances hitherto devised for the purposes. It renders Billroth's oblique bone sections, Gurdon Buck's wire sutures, or Woods's clamp—devised for the purpose of preventing any tilting forwards of the femur—quite unnecessary. Hereafter some better appliance may be devised, but at present no other splint should, in my opinion, be employed in the after-treatment of knee resections:—

Catherine M'N., aged twenty, was admitted into the Richmond Hospital, under my care, on November 1st, 1875, suffering from complete ankylosis of the left knee-joint. The limb was flexed to a right angle, and firmly fixed in that position. The patient stated that ten years previous to her admission to hospital, while she was playing with some of her companions on the steps of a hall-door, her foot slipped, and she fell and sustained a severe contusion of her knee. She did not, however, for some days pay any attention to the injury, and the result of her neglect was that the knee became inflamed, and got very painful. She was then taken to an hospital, where she remained for six weeks, during which time things went from bad to worse, and finally suppuration in the knee-joint took place. Free incisions were then made, but subsequently the condition of things became so critical that amputation was proposed. To this proposition she and her friends declined to accede, and she was accordingly removed from the hospital. In course of time things began to mend, and finally the numerous sinuses closed, all inflammatory action in the knee ceased, and she got well. The knee, however, was extremely

[a] As descriptions of this splint have already been given in this Journal, it is unnecessary for me to give an account of its mode of application.

flexed. With this condition of things she was, strange to say, satisfied for nearly ten years. A few days previous to her admission into hospital she sustained another fall, which resulted in inflammation of the tissues about the knee; and she was brought to the Richmond Hospital with the knee very considerably swollen. After a few days' treatment the swelling subsided, and she then asked if anything could be done to straighten the limb. On making an examination of the limb, I found it was perfectly immovable, and that it was quite impossible either to increase the flexion of the limb or to straighten it in the slightest degree.

Looking at the length of time that had elapsed from the date of the original injury, I came to the conclusion that it would be quite useless to attempt any gradual extension process and unjustifiable to forcibly extend the limb by either the operations of Rizzoli of Bologna, or of Professor Gross of Philadelphia, and that I should either excise the knee or amputate the limb. The former operation I recommended her to accede to, and she did so willingly. Esmarch's bandage having been applied, and ether administered, I performed the operation of excision, adopting the usual U-shaped incision. The patella I found firmly ankylosed to the femur, and could not be detached with the anterior flap. I then removed, with an ordinary amputation saw, a wedge-shaped piece of bone, which included the patella, portion of the femoral condyles, and head of tibia. On removing the upper constricting band of Esmarch's appliance, only two small divided vessels were found requiring to be secured, and these were tied with carbolised catgut ligatures. The limb was then easily extended, and fixed in its new position by P. H. Watson's gypsum splint, as modified by Mr. Hayes. On the patient being placed on a bed, a subcutaneous injection of morphia was given, and she soon after fell asleep. About two hours after the operation the resident surgeon was summoned to the patient, on account of hæmorrhage which had just set in. On examination he found that it arose mainly from the inner side of the wound. On compressing the femoral artery all bleeding ceased, but on removing the pressure the hæmorrhage came on again. I was then sent for, and by means of pressure, and ice applied locally, and the internal exhibition of ergot of rye, I succeeded for a time in checking the bleeding. On its recurrence about an hour afterwards I had to open the flap, and seek for the source of the hæmorrhage. I found it came not from any vessels in the soft tissues, but from the cut surfaces of the bones. Having regard to the source of the hæmorrhage, its arrest was for a time attended with great difficulty and embarrassment. However, I eventually succeeded, by separating the cut surfaces of the bones sufficiently to enable me to insert between them a thin compress of lint soaked in an aqueous solution of perchloride of iron. This I removed in about half an hour, when I was gratified to find there was no recurrence of the bleeding. The sutures were then re-applied. For some days subsequent to the

operation the condition of the patient's pulse and temperature were such as to give me considerable anxiety, and it was not until the fourth day after the operation that these and other serious symptoms of constitutional disturbance began to abate, and pulse and temperature to approach the normal standard.

From this the progress of the case was uninterruptedly satisfactory. The antiseptic dressings, which for the first four weeks after the operation were renewed daily, were mainly composed of benzoic acid and glycerine. The wound healed with surprising rapidity, and on Dec. 26th I removed the splint, and found the union firm and strong. The patient shortly after this left the hospital. In June, 1877, nineteen months after the operation, the patient walked into the hospital without any artificial support or any limp, and stated that her health had remained quite satisfactory since she left hospital, and that the limb operated on had never been in the slightest degree a source of trouble or anxiety to her. She was able to take long walks without any difficulty or inconvenience. The result of the case was, in truth, eminently satisfactory.

Extirpation of the Tongue.—Notwithstanding the condemnation of this operation by many living surgeons of eminence, the hard logic of facts every day is showing how much more judicious it would have been for them to have suspended their judgment until a larger experience of the procedure had been obtained. In one popular System of Surgery I find it stated that "so cruel a procedure could hardly have any other than a fatal termination—death occurring, if not from shock and hæmorrhage, from œdema of the glottis, pneumonia, erysipelas, or pyæmia."[a] In another standard work I find it stated that it is "one of the most unpromising of all the operations in surgery."[b] On the other hand, however, there is the weighty testimony in its favour of such distinguished surgical operators as Sir James Paget, the late Professor Syme, Mr. Nunneley, and Mr. Maurice Collis. Since the introduction of the ecraseur and the galvanic cautery, the operation can no longer justly be described, as it has been by one of the distinguished surgeons already alluded to, as "a terrible ordeal." Performed by the method of Mr. M. Collis, or the modification of that procedure I desire to advocate, the operation is singularly painless, and can be performed with a very trifling loss of blood, and the results have in no way justified the sweeping censures I have already mentioned. Many surgeons stoutly

[a] Gross. System of Surgery. Philadelphia.

[b] Holmes. Surgery: its Principles and Practice. London. 1875. P. 575.

maintain that under no circumstances should cancer of the tongue ever be the subject of operative interference, but to these I would suggest the perusal of the following philosophical remarks of Sir James Paget. Speaking on the subject of cancer of the tongue, he observes:—"The motive to operate here, as in other cases, is either to prolong life, or, without shortening, to comfort what remains. For the first there is, I believe, some advantage—not a great prolongation of life, yet enough to justify an operation which is attended with very little suffering or risk. But the chief motive is in the hope of comfort, and the comfort that may be gained is, in many cases, so great as to justify a greater risk of life than is incurred in any of the ordinary operations for the removal of cancer of the tongue. The risk is really very small. I have not had a fatal case or witnessed one. There are few of even the minor operations of which I could say so much, and the comfort given is that the patient is delivered, for the time, from all the misery of one of the most distressing and disabling conditions of disease, and, till the cancerous growth is renewed, may enjoy complete health, and do all his work. Doubtless the disease will return after operation, but it is as unreasonable to refuse a painless operation, and one free from risk of life, because the disease will return at some time soon after it, as it would be to refuse a course of medicine because it gives only temporary relief. When a man has only suppose two or three years to live, it is of no small advantage if at least half the time can be spent in comfort rather than in misery, and in profitable work rather than in painful idleness. Looking back on the many cases of cancer of the tongue that I have had to do with, I should be disposed to say that there is no organ on which operations for cancer are more justly performed, or are more to be urged, even in extreme cases."

The method advocated by the late Mr. M. Collis is decidedly an improvement on the operations of the kind that preceded it. In it are combined a facility to the operator and a diminished risk to the patient that do not exist in the procedures of Syme, Nunneley, Sédillot, or Regnoli. There are, however, certain defects in it which must be patent to every operator with experience in such cases. The curved incision through the lower lip, passing downwards, backwards, and then upwards through the tissues of the lip first and then of the cheek, unnecessarily complicates the operation. The division of the sublingual attachments of the tongue by one ecraseur, and of the other structures at the base of the organ by

another, is also an obvious disadvantage; and, lastly, there is the absence of any means to aid the surgeon in checking or arresting hæmorrhage in the event of it occurring subsequent to the division of the organ. These palpable defects are effectually remedied by the procedure I wish now to advocate, and which I adopted in the case I am about to record. This method, I may mention, I made use of in two other similar cases, and in a fourth one of the same kind my colleague, Dr. Wm. Thomson, has operated successfully:—

Eliza M., aged fifty-six, was admitted into the Richmond Surgical Hospital on January 1st, 1876. She stated that four years ago she had an attack of erysipelas of the head and face which lasted for six weeks. About a month subsequent to this attack she noticed that when she took anything hot into her mouth it smarted her tongue, and also that beer, preserves, and salt meat were especially painful. Shortly after this she noticed a small blister about the size of a mustard seed situated about an inch and a half from the tip of the tongue, and slightly to the left of the mesial line. The patient did not apparently pay any special attention to this, nor did she consult anyone respecting it, although it gradually increased in size during nearly four years. She then showed her tongue to the local practitioner where she lived, and he recommended her to come without delay to Dublin for surgical treatment. Notwithstanding this advice she remained a month longer in the country. On her admission into hospital, I found the tongue greatly enlarged and irregular in shape. There was an irregular deeply excavated ulcer about an inch and a half in length occupying the upper and left lateral portion of the organ. The root of the tongue was apparently free from disease. There was no apparent enlargement of either the sublingual, submaxillary, or cervical glands, and the patient did not complain of any pain. Her aspect was healthy, and she stated she had always enjoyed good health. She slept well, and her appetite was good, but she suffered much from the contact of the food with the ulcer. On making inquiries as to her family history, it was ascertained that her mother had died of cancer of the uterus, and an aunt (her mother's sister) of cancer of the stomach. However, notwithstanding this unfavourable family history, I determined, after consultation with my surgical colleagues, to remove the tongue. The method I adopted was as follows:—The patient having been brought under the influence of ether, I commenced by transfixing the cheek a little in front of the angle of the jaw, and made a transverse incision through the tissues of the cheek to the angle of the mouth. All bleeding vessels were then carefully secured by torsion and ligatures. I then drew the tongue forward, and was enabled to determine accurately how far the disease had extended. Having on more than one occasion experienced some trouble from secondary hæmorrhage in similar operations

on the tongue, I adopted a procedure which, as far as I am aware, has not hitherto been noticed. It consists in passing a strong needle, armed with a double silk ligature through the base of the tongue and well behind the diseased portion of the organ. The ligature is then divided at the eye of the needle, which latter is removed, and the four free ends of the ligature tied together. In this manner we have a secure method of drawing forward the base of the tongue in the event of hæmorrhage occurring after removal of the diseased portion of the organ, and applying ligatures or other means of checking hæmorrhage. The loop of silk having been entrusted to one of my assistants, I applied the chain of an ecraseur well behind the disease and in front of the silk loop. The division of the tongue occupied forty-five minutes. It was accomplished satisfactorily, and without the loss of a single drop of blood. The edges of the wound in the cheek were carefully brought into apposition, and retained by six fine entomologist pins and twisted sutures of soft floss silk. The tied extremities of the strong silken thread that had been passed through the base of the tongue in the first instance were fastened by adhesive plaster to the side of the cheek, and the patient was then carried back to bed. For some hours after the operation small pieces of ice were frequently introduced into her mouth. A hypodermic morphia injection was also ordered. At 4.30 p.m. I saw the patient, and found everything going on satisfactorily. Her pulse and temperature were scarcely above the normal standard. She was quite free from any uneasiness, and enjoyed the ice greatly.

Jan. 6th.—Improvement continuing; considerable discharge from the mouth; slept well.

7th.—Patient continues much in the same way; discharge less. Ice continued.

8th.—This day, no longer fearing secondary hæmorrhage, I removed the silken thread which I had passed through the root of the tongue. I also removed three of the entomologist pins from the wound in the cheek.

10th.—Remaining sutures removed.

12th.—Patient convalescent.

Eight months after the operation I saw the patient. She was cheerful and well, and there was then no evidence whatever of any return of the disease. Since that I have not had an opportunity of examining the patient.

Rhinoplastic Operation; new method.—The principles that should guide the surgeon in the performance of a rhinoplastic operation, where the defect has arisen from injury, must, in the great majority of cases, differ widely from any of the procedures hitherto

suggested for the restoration of a nose destroyed by disease. In the case about to be noted neither the Indian rhinoplastic operation or any modification of it could be for a moment contemplated. In truth, in such cases, it is not possible to lay down any definite rules as to how the surgeon should proceed, as every case must be dealt with in a different manner, according as the defect be great or little. One great difficulty, however, the surgeon has to contend with in all rhinoplastic operations, whether performed for defects arising from injury or disease, and that is to obtain a sufficient elevation of the nose. I am not aware that the idea of Langenbeck, of making supporting buttresses for the soft parts from the nasal processes of the superior maxillary bones, has ever been successfully carried into effect. I should greatly fear the supervention of necrosis subsequently resulting from the necessary section, and partial fracture of these osseous processes. The idea, however, is as ingenious as it is original. It occurred to me that much of the difficulty I have alluded to might possibly be obviated by making use of a mechanical appliance for elevating the new nose during the process of healing. I accordingly consulted my colleague, Mr. W. Booth Pearsall (whose mechanical ingenuity is of so high an order) on the subject, and requested him to devise, if possible, an appliance which would keep the parts well raised during the process of healing, and be adjusted immediately after the performance of the operation. He did so, and I found that it answered the required purpose admirably:—

J. M., aged nineteen, was admitted into the Richmond Hospital, under my care, on September 1st, 1876, suffering from the remarkable and unusual deformity depicted faithfully in the accompanying lithograph. While working at a crane, owing to a defect in the appliance, there was a sudden reverse action of the wheel, and the handle of the appliance struck the patient violently on the face, so as for a time completely to stun him. On his recovery the nasal bones were found to be extensively fractured and depressed and the deformity produced for which, after the lapse of many months from the receipt of the accident, he sought admission to the hospital in order to have it, if possible, remedied by some operative measure. On the 11th September I operated in the following manner:—I commenced by making a straight incision down the central line of the nose, and then dissected carefully the soft tissues of the depressed nasal bones. I then, with a fine resection-saw and forceps, separated these bones from the adjacent maxillary bones, having them united above, and in the vesical line. Passing in elevators between the

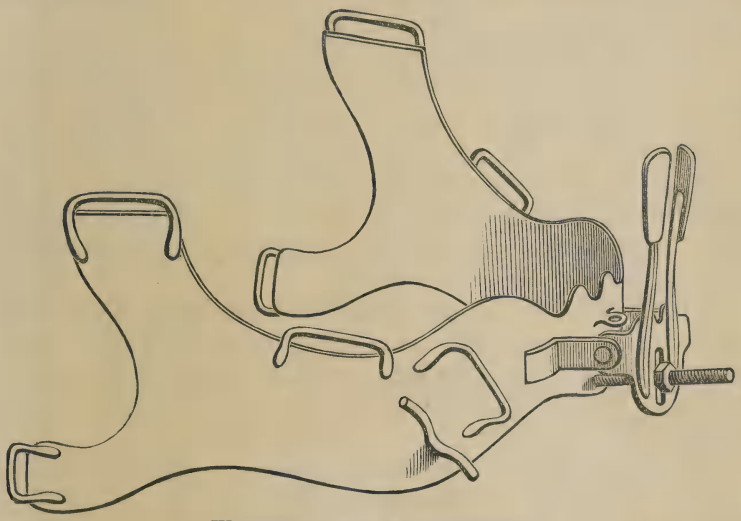
Drawn from a Photograph.

Forster & Co., Lith., Dublin.

MR STOKES ON A NEW RHINOPLASTIC OPERATION.

nasal and maxillary bones, I raised the former to what I considered a sufficient height, and then proceeded to cover these bones in their position with the soft tissues at each side of the nose. In order to facilitate this manœuvre I made two lateral incisons at each side of the nose, about a quarter of an inch from the mesial line of the nose above, and half an inch from it below. The defect caused by the transplantation of the soft tissues over the elevated nasal bones I allowed to heal by granulation.

Mr. Pearsall's nasal elevator was then applied and kept in position for three weeks, being only occasionally removed for cleansing purposes. I cannot speak too highly of the simplicity and ingenuity of this instrument—a woodcut and description of which, written by him, is here appended. I have no hesitation in stating my conviction that the instrument will be found to be of the greatest service to the surgeon in all rhinoplastic operations, whether undertaken for defects arising from injury or disease.



W. Booth Pearsall's Nasal Elevator.

This instrument is designed to carry out four objects:—

First.—To admit of movable levers with flattened ends being inserted into each nostril to support the parts in any position at the pleasure of the surgeon.

Second.—To do away with the trouble and inconvenience of using graduated plugs or tents of oiled lint or cotton, and the pressure and heat they invariably cause in the nostril and surrounding parts.

Third.—To afford a fixed point of support from which the levers could hold the parts in position during the process of healing.

Fourth.—The construction of an instrument that would give to the patient tolerable comfort in eating, speaking, and sleeping, during the progress of the case, and at the same time relieve the surgeon's anxiety about maintaining an even pressure during the night when supporting the parts by the use of the instrument. The general body of the instrument is cut from a sheet of metal on which has been traced the outline of a paper pattern which was accurately cut to fit the patient's face. In outline the instrument somewhat resembles the form of the lower jaw, with a process from the angle which is directed backwards, thus forming a hollow space which admits each ear. Three wire loops, for the attachment of strips of bandage or tape, are placed at each end and upper side of the instrument, as well as a couple of what may be termed "*cleats*" for smaller strips to cross the nose, should it be necessary to place pads of lint outside to compress the nose.

In front of the body of the instrument, and directly below the nose, is placed a metal bridge in which is inserted a pin on which the two levers which support the nose work backwards and forwards, and the end of the bridge is left long enough to work freely on a screw which is riveted into the body of the instrument in the centre below the nose. Over the end of the bridge is placed a small nut, working on the screw, and elevating or depressing the levers at the pleasure of the surgeon.

As the levers are made of well-annealed metal they can be easily bent by the surgeon's fingers to any angle or plane he may consider useful, as well as having the backward and forward action kept at any angle by the screw when the instrument is worn by the patient.

The first object is well shown in the woodcut, and does not need any further description. The second object was most readily and satisfactorily gained, as the parts were free from any heat or irritation during the progress of the case, and as the nasal passages were only very slightly obstructed by the pressure of the levers, an ample supply of fresh air was admitted, while sufficient support was given to the parts, without pain or pressure. The general form of the instrument having been designed from a stiff paper pattern, which was cut to fit the patient's face, there was no trouble in securing it to the head by means of the strips of bandage, without causing any discomfort to the patient, and at the same time the

Drawn from a Photograph.

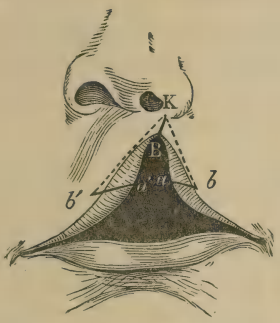
Forster & Co., Lith., Dublin.

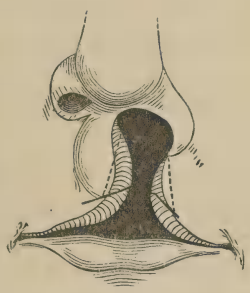
MR. STOKES ON THE OPERATION FOR HARE LIP

correct adjustment of the levers to the flaps forming the nose was secured in a ready and satisfactory way.[a]

Hare-lip.—The following case affords a good example of the result that may be obtained by the adoption of the method of operating I have drawn attention to, and advocated in *The Dublin Quarterly Journal* for August, 1870. The drawings are, I may mention, taken from photographs:—

M. F., aged two years, was admitted into the Richmond Hospital, under my care, at the latter end of May, 1874, suffering from single hare-lip complicated with a wide fissure in the soft palate. A reference to the excellent lithograph by Mr. Forster, from a photographic representation of the child taken before the operation, will give a good idea of the great deformity that had to be dealt with. The patient was otherwise well-formed, a strong, well-nourished, healthy child, and there was no reason for delaying operative interference. On June 3rd I performed the operation in the manner I described in *The Dublin Quarterly Journal* for August, 1870. The annexed woodcuts will facilitate the reader in





recalling the steps of the operation I advocate. A Nunneley's forceps having been applied at each angle of the mouth, I seized each edge of the cleft with a hook, drew it forward, and with a fine, narrow-bladed, straight knife (Graefe's), I made an incision through the entire thickness of the lip—stopping, however, about three lines above the red border of the lip. A point of suture was then applied to the extremities of these flaps. The partial incisions were then made, going through at least three-fourths of the thickness of the lip, and then were turned back, and

[a] One or two of the minor details, such as the exact position of the upper loops for the bandages, and having each lever working on a separate screw, could be easily carried out in another case, but the one under notice had to be made in a very limited time to suit a case ready for operation, and it carried out my intention much better than I could have supposed from the short time I had to adjust it in.—[W. B. Pearsall.]

the broad raw surfaces of each brought into apposition and kept so by the introduction of two strong, well-tempered, spear-pointed needles and twisted floss silk figure of ∞ suture. These were removed seventy hours after the operation, when union was found to be perfect. The child soon after returned home. Eighteen months after the operation the parents of the child had a photograph taken of the child and forwarded to me. From this the accompanying lithograph is taken, and gives a good idea of the satisfactory result obtained.

In my paper on hare-lip, to which I have already referred, the following are the advantages I claimed for this procedure:—

First.—No subsequent curtailment at the lower end of the cleft is necessary.

Second.—The procedure is applicable to all forms and varieties of hare-lip.

Third.—There is no chance of portions of the soft tissues perishing from any twisting of them.

Fourth.—There can be no puckering.

Fifth.—There can be no subsequent notch.

Sixth.—The possibility of any vertical sulcus or groove in the line of the cicatrix is also prevented, which is the case after Sédillot's, Malgaigne's, Samuel Smith's, and, in truth, all other operations hitherto devised for remedying the defect of hare-lip.

Operation for Cleft Palate.—Of the congenital malformations the surgeon is called on to deal with, none taxes the manipulative dexterity of the operator to a greater extent than operations for remedying clefts in the hard and soft palate. At times the difficulties attending the operation are great, especially when the subjects of the operation are very young, deficient in intelligence and fortitude, and incapable of realising the importance of aiding the surgeon by keeping steady and quiet during the performance of the operation. Notwithstanding these difficulties the surgeon should not, unless there be some constitutional or local contra-indication, shrink from recommending the operation to be undertaken during the patient's early youth; for, in my experience, much improvement in clearness of articulation need not be hoped for if the operation be deferred till the patient has reached the adult period of life. Since the introduction of Smith's gag and tongue-depressor, one of the great difficulties in operating on children has been removed—viz., the continual motion of the tongue. No one but those who have operated on cases of cleft palate before the introduction of

Drawn from a Photograph.

Forster & Co., Lith., Dublin.

MR. STOKES ON REMOVAL BY OPERATION OF
DEFORMITY RESULTING FROM A BURN.

this instrument, have any idea of the facilities it affords the surgeon in cleft palate operations. This instrument, Langenbeck's needle, and Marion Sims's suture-twister, are instruments which, I think, every surgeon should avail himself of in either uranoplastic or staphyloraphy operations.

J. B., aged eight, was admitted into the Richmond Surgical Hospital, under my care, in the early part of September, 1873, suffering from a wide cleft in the soft palate. Both the functions of deglutition and articulation were materially affected—the latter, in truth, so much that it was almost impossible to comprehend anything the little patient attempted to say. There was no contra-indication, that I could discover, to immediate interference. So, on September 20th, I performed the operation. The patient being placed opposite a strong light, with his head well supported by an assistant, Smith's gag was applied. The edges of the cleft were then carefully pared with a double-edged spear-pointed scalpel. Very smart hæmorrhage occurred at this stage of the operation, but was successfully checked by iced-water, sponges, &c. This, however, caused some delay in the operation. I then inserted five points of metallic suture by means of Langenbeck's needle, and fixed them by Marion Sims's twister. Finding that there was, after the sutures were inserted, considerable tension of the soft palate, and a drawing of it upwards and backwards towards the posterior nares, I divided the palate muscles by Mr. Pollock's partially submucous incision, at a point close to the hamular processes, and found that at once all tension ceased. On the third day after the operation I removed two of the sutures, and on the following one the remainder. Union was then found to be perfect throughout. Before the patient left hospital—about a fortnight after the operation, the function of deglutition was perfect, and the clearness in speech improved in a marked degree. A year after the operation, when I again saw the patient, the clearness in articulation was perfect. The result of the operation was, in truth, in every sense of the word, satisfactory.

Removal by Operation of Deformities resulting from a severe Burn.—The sad, and often extensive, deformities that result from the contractions consequent on burns, constitute a class of case which presents features of much interest and importance to the operating surgeon. Though much difficulty often attends operative interference in these cases, the surgeon, if he be possessed of patience, and fertility of resource, may have, at times, the satisfaction of knowing that he has been the means of enabling the sufferer, not only to cease being an object of pity, as well as repulsion, to all he came in contact with, but also to earn a livelihood by honest work.

The advance made in this department of surgery, of late years, furnishes one of many instances of progress that may be mentioned to that dreary band of individuals, *laudatores temporis acti*, who, apparently, never weary of extolling the surgery of the past, and decrying that of the present day. Even so late as 1846, Mr. Liston, one of the most eminent operators the British school of surgery has produced, speaking of operations undertaken for the removal of these deformities, observes:—"There is no encouragement to make such attempts, however; certainly no severe operation is warrantable; and, as already said, it is only in favourable instances, where the connecting slip is thin, and not extensive, that any permanent advantage can be expected from interference." Were the distinguished writer of this passage now alive, the opinion just quoted would, doubtless, be modified not a little.

I have had opportunities of witnessing and treating—by stretching, by excision and transplantation of healthy skin, by incision and stretching, and by Kirkpatrick's excellent method of incision and cauterisation—a very large number of cases of deformity resulting from burns; cases in which free motion of the head, face, or limbs, was seriously impaired; where the eyelids were everted, indirectly causing corneal inflammation and opacity. Also instances where the lower lip was everted; the head, perhaps, bent to one side, or bowed down, the chin being fixed to the sternum; where the hand was partially dislocated, and the fingers bound together by webs; where the arm was immovably fixed to the side of the chest, or the forearm to the arm, by a broad, firm, and unyielding web; and cases, also, where both upper and lower extremities were, apparently, hopelessly disabled. I have, however, no recollection of ever having met with a case in which the deformity was more aggravated than in the one represented in the accompanying lithographic drawing from a photograph, taken immediately preceding operative interference.

P. H., aged twelve, was admitted into the Richmond Surgical Hospital in the early part of October, 1874. Six years previously the child accidentally fell into a fire. His clothes ignited, and, before assistance came, a deep and extensive burn was sustained, extending over the front of the neck, chest, right arm, and forearm. For some time little hope of the patient surviving was entertained by his relatives, who, strange to say, neglected to seek for surgical advice after the accident. The child recovered from the immediate effects of the accident, but with the fearful deformity here represented—the chin bound down by a strong band to

Drawn from a Photograph. Forster & Co., Lith., Dublin.

MR. STOKES ON REMOVAL BY OPERATION OF DEFORMITY RESULTING FROM A BURN.

the chest, and the forearm flexed on the arm to such an extent as to make it a perfectly useless limb.

On October 21st I performed the first of a series of operations in this case—some of them being excisions of the cicatrices, and others plastic operations for covering the defects caused by the removal of cicatricial tissue. Skin-grafting was also largely employed on various occasions in the treatment of this case, and in no instance have I been more struck with the great surgical importance of this procedure. It is unnecessary to give the details of the operations—ten in number—that I performed in this case. They were all very similar—viz., excision of the contracted cicatricial tissue, and afterwards partially covering in the defect by transplanting, when practicable, portions of healthy integument from the parts in the immediate vicinity of the defect. The result at the end of four months was, as can be seen in the accompanying lithographic drawings, satisfactory. The patient remained for several months after the operations in hospital, and was able and willing to render assistance in many ways to the servants of the institution—the reason I kept him in hospital so long being to see if circumstances might arise to render any further operative interference desirable.

Annexed is a statistical record (continued from p. 451, Vol. LIV., of this Journal) of operations performed by me in the Richmond Surgical Hospital during the period 1872–76, inclusive. It does not include a very large number of minor operative procedures, of which no record was kept.

tatistical Record of Surgical Operations performed by Mr. William Stokes, *in the Richmond Surgical Hospital, between January*, 1872, *and December*, 1876.

AMPUTATIONS.

Date	No.	Operation	Disease or Injury	Sex and Age	Result
v. 18, 1874	138	Amputation at shoulder-joint	Necrosis of humerus	Male, 40	Favourable
v. 30, 1872	139	Primary amputation of the arm	Forearm extensively crushed by wheel of locomotive	Male, 60	Unfavourable
v. 8, „	140	Amputation of hand	Hand crushed by a cog-wheel	Male, 30	Favourable
t. 11, 1873	141	Amputation (partial) of hand	Machine accident	Male, 20	do.
c. 16, 1875	142	Amputation at wrist-joint (Dubreil)	Strumous disease	Male, 17	do.
r. 17, „	143	Amputation of hand	Gun-shot injury	Male, 22	do.
ne 11, 1873	144	Amputation of thumb	Thumb crushed between cogs of a wheel	Male, 12	do.
t. 24, „	145	Amputation of thumb	Machine accident	Male, 25	do.
c. 11, 1872	146	Primary amputation of index and middle fingers	Compound and comminuted fracture of phalanges of fingers	Male, 35	do.
. 20, „	147	Amputation of middle finger	Necrosis	Male, 60	do.
. 6, „	148	Amputation of left index finger	Gangrene	Male, 53	do.

AMPUTATIONS—*continued.*

Date	No.	Operation	Disease or Injury	Sex and Age	Result
Feb. 10, 1872	149	Amputation of little finger	Necrosis	Male, 17	Favourable
Feb. 10, ,,	150	Amputation of left middle finger	Gun-shot injury	Male, 21	do.
June 22, ,,	151	Double primary amputation of middle and ring finger	Crush from machine accident	Male, 61	do
Oct. 25, ,,	152	Amputation of ring and index fingers	Machine accident	Male,	do.
Oct. 24, 1873	153	Partial amputation of middle finger	Finger crushed by blow of a hammer	—	—
Oct. 9, 1874	154	Amputation of finger	Necrosis	—	—
Mar. 22, 1876	155	Amputation of ring finger	Contraction	Female, 28	Favourable
Nov. 1, 1873	156	Amputation of thigh (rectangular)	Ulceration of cartilages of knee-joint	Female, 27	do.
Oct. 7, 1874	157	Supra-condyloid amputation of thigh	Necrosis of bones of leg	Male, 30	do.
Nov. 11, ,,	158	Supra-condyloid amputation of thigh	Necrosis	Male, 32	do.
June 7, 1876	159	Supra-condyloid amputation of thigh	Compound comminuted fracture of bones of leg	Male, 45	Unfavourable
May 19, 1875	160	Amputation of thigh (rectangular)	Strumous disease of knee	Male, 11	Favourable
Dec. 6, 1872	161	Amputation of the leg—up. third	Compound fracture of leg	Male, 63	do.
Mar. 9, 1876	162	Amputation at the ankle-joint (Pirogoff). Subsequently converted into Syme's amputation	Chronic ulceration of cicatrix after partial amputation of anterior portion of foot for a crush produced by the wheel of a locomotive	Male, 35	do.
Mar. 15, 1876	163	Amputation at the ankle-joint (Syme)	Strumous disease	Male, 32	do.
Mar. 19, 1873	164	Amputation of great toe	Melanosis	Male, 40	—
Nov. 8, 1876	165	Amputation of great toe	Onychia maligna	Female, 17	Favourable
Oct. 9, 1872	166	Amputation of penis	Epithelioma	Male, 57	do.
Nov. 27, 1872	167	Amputation of penis	Epithelioma	Male, 72	do.
May 21, 1873	168	Amputation of penis	Epithelioma	Male, 55	do.
May 28, ,,	169	Amputation of penis	Encephaloid disease	Male, 60	do.
July 9, ,,	170	Amputation of penis	Epithelioma	Male, 62	do.
Dec. 6, 1876	171	Amputation of penis	Epithelioma	Patient, 50	do.

EXCISIONS.

Nov. 6, 1872	172	Excision of upper jaw	Enormous tumour originating at base of skull	Male, 56	Favourable
Nov. 4, 1874	173	Excision of shoulder-joint	Ulceration of cartilages of shoulder-joint	Female,	do.
Aug. 2, 1875	174	Excision of wrist	Strumous disease of wrist	Male, 22	do.
Nov. 10, ,,	175	Excision of knee-joint	Osseous ankylosis in bent position	Female, 20	do.
Jan. 26, 1876	176	Excision (partial) of lower jaw	Malignant disease	Male, 56	Unfavourable
May 15, 1872	177	Excision of os calcis	Caries	Male, 12	Favourable
Oct. 25, 1876	178	Excision, and wire sutures applied	Ununited fracture of tibia	Male, 45	Unfavourable
June 12, 1872	179	Excision	Large axillary adenoma	Male, 10	Favourable
Oct. 1, 1873	180	Excision	Neuroma of posterior tibial nerve	Female, 30	do.
Sept. 1, ,,	181	Excision	Epulis	Female, 35	do.
Sept. 14, ,,	182	Excision	Large encysted tumour of eyelid	Female, 18	do.

EXCISIONS—*continued.*

Date	No.	Operation	Disease or Injury	Sex and Age	Result
Nov. 6, 1872	183	Excision	Large fungoid growth on right hypochondriac region	Female, 36	Favourable
Mar. 5, 1873	184	Excision	Malignant tumour over left eyebrow	Female, 68	do.
Mar. 25, ,,	185	Excision	Large glandular tumour in groin	Male,	do.
May 1, 1872	186	Excision of breast	Scirrhus of breast	Female, 55	do.
Sept. 10, 1873	187	Excision of breast	Scirrhus of breast	Female, 50	do.
July 15, 1876	188	Excision of breast	Scirrhus of breast	Female, 45	do.
Nov. 15, ,,	189	Excision of breast	Scirrhus of breast	Female, 36	do.
April 2, 1873	190	Excision	Adenoid tumour on forehead	Female, 60	do.
July 16, ,,	191	Excision	Large encysted atheromatous tumour of orbit in lower and inner angle, displacing eyeball upwards and outwards	Female, 45	do.
Aug. 8, ,,	192	Excision	Large fatty tumour on scapula	Female, 20	do.
July 24, 1874	193	Excision	Enchondroma on fifth metatarsal bone	Female, 40	do.
July 22, ,,	194	Excision	Enormous adenoid tumour of neck	Male, 14	Unfavourable
Dec. 8, 1875	195	Excision	Fatty tumour of thigh	Male, 24	Favourable
Dec. 16, ,,	196	Excision	Fibrous tumour on back of thigh	Male, 30	do.
Nov. 4, 1874	197	Excision	Malignant tumour of leg	Male, 20	do.
Nov. 18, ,,	198	Excision	Enormous pachydermatocele of scalp	Male, 32	do.
Jan. 5, 1876	199	Excision of tongue	Epithelioma	Female, 56	do.
Feb. 17, 1875	200	Excision (partial) of tongue	Epithelioma	Male, 50	do.
July 12, 1876	201	Excision	Adenoid tumour of neck	Male, 9	do.
Aug. 18, ,,	202	Excision	Epithelioma of cheek	Male, 38	do.
Oct. 4, ,,	203	Excision	Epithelioma on forehead	Male, 70	do.
Oct. 18, ,,	204	Excision	Epithelioma of cheek	Female, 55	do.
July 15, ,,	205	Excision of breast	Scirrhus	Female, 37	do.
Aug. 11, ,,	206	Excision of breast	Scirrhus	Female, 40	do.
Nov. 7, ,,	207	Excision of breast	Scirrhus	Female, 45	do.

PLASTIC OPERATIONS.

June 29, 1872	208	Plastic operation for restoration of portion of left cheek	Cancroid	Male, 57	Favourable
Oct. 9, ,,	209	Plastic operation	Epithelioma of cheek	Male, 54	do.
Dec. 11, ,,	210	Zeis' cheiloplastic operation	Extensive epithelioma of lower lip	Male, 60	do.
Dec. 10, 1873	211	Zeis' cheiloplastic operation	Epithelioma of lip and chin	Male, 64	do.
Sept. 6, 1876	212	Burow's plastic operation	Warty ulcer of face	Male, 73	do.
Sept. 11, ,,	213	Rhinoplastic operation	Complete flattening of nose, &c., injury	Male, 23	do.
Jan. 18, 1873	214	Cheiloplastic operation	Epithelioma of lip	Male, 61	do.
Aug. 26, ,,	215	Cheiloplastic operation	Epithelioma of lip	Male, 70	do.
Sept. 8, ,,	216	Cheiloplastic operation	Epithelioma of lip	Male, 60	do.

PLASTIC OPERATIONS—*continued.*

Date	No.	Operation	Disease or Injury	Sex and Age	Result
Sept. 10, 1873	217	Cheiloplastic operation	Epithelioma of lip	Male, 50	Favourable
Nov. 19, „	218	Cheiloplastic operation	Epithelioma of lip	Male, 60	do.
May 31, 1875	219	Plastic operation	Epithelioma of cheek	Male, 52	do.
May 10, 1876	220	Cheiloplastic operation	Epithelioma of lip	Male, 41	do.
Aug. 30, „	221	Cheiloplastic operation	Epithelioma of lip	Male, 92	do.
April 12, 1872	222	Plastic operation	Ankyloblepharon	Male, 12	do.
Oct. 10, 1873	223	Cheiloplastic operation	Epithelioma of lip	Female, 60	do.
Nov. 19, „	224	Cheiloplastic operation	Epithelioma of lip	Male, 52	do.
July 26, „	225	Cheiloplastic operation	Epithelioma of lip	Male, 71	do.
Aug. 8, „	226	Cheiloplastic operation	Epithelioma of lip	Male, 60	do.
Sept. 17, „	227	Cheiloplastic operation	Epithelioma of lip	Female, 50	do.

ORTHOPÆDIC OPERATIONS.

Sept. 24, 1872	228	Tenotomy	Varus	Male, 4 months	Favourable
Sept. 24, „	229	Tenotomy	Varus	Male, 5 months	do.
Sept. 30, „	230	Tenotomy	Varus	Female, 14	do.
Oct. 9, „	231	Tenotomy	Varus	Male, 6 months	do.
Nov. 20, „	232	Tenotomy	Varus	Male, 4 months	do.
Mar. 19, 1873	233	Tenotomy	Varus	Male, 6 months	do.
Oct. 14, „	234	Tenotomy	Double Talipes Varus	Male, 2	do.
Nov. 1, „	235	Tenotomy	Talipes Equino-Varus	Male, 9 months	do.
Dec. 12, „	236	Tenotomy	Varus	Male, 2	do.
Dec. 12, „	237	Tenotomy	Varus	Male, 15 months	do.
Nov. 22, 1876	238	Tenotomy	Varus	Male, 5 months	do.

MISCELLANEOUS OPERATIONS.

Jan. 19, 1872	239	Herniotomy	Strangulated hernia	Male, 68	Unfavourable
June 17, „	240	Tracheotomy	Œdema of the glottis	Male, 39	do.
Sept. 26, „	241	Lithotomy (Median)	Catheter in bladder	Male, 50	Favourable
Oct. 9, „	242	The author's operation for hare-lip	Hare-lip	Male, 2	do.
Jan. 10, 1873	243	Operation for imperforate rectum	Atresia ani	Male, 2 days	do.
Mar. 31, „	244	Herniotomy	Strangulated hernia	Male,	Unfavourable
Sept. 20, „	245	Staphyloraphy	Cleft palate	Male, 9	Favourable
June 27, 1874	246	Ovariotomy	Multilocular ovarian cyst	Patient, 22	Unfavourable
Mar. 25, „	247	Urethrotomy (internal)	Urethral stricture	Male, 35	Favourable
Oct. 14, „	248	Castration	Strumous disease of testis	Patient, 26	do.
Jan. 23, 1872	249	Deligation of radial artery	Wound of radial artery	Male, 36	do.

MISCELLANEOUS OPERATIONS—*continued.*

Date	No.	Operation	Disease or Injury	Sex and Age	Result
May 20, 1874	250	Dieffenbach's operation	Ununited fracture of humerus	Male, 60	Unfavourable
May 13, ,,	251	Ligature of tumour	Carcinoma linguæ	Male, 40	Favourable
May 6, ,,	252	Removal of portion of alveolar process of upper and lower maxillæ	Epithelioma	Female, 50	Unsuccessful
June 3, ,,	253	The author's operation for hare-lip	Single hare-lip	Male, 2	Favourable
June 17, ,,	254	Evulsion	Enormous nasal polypus	Male, 40	—
Feb. 25, ,,	255	Division of sphincter	Fistula in ano	Male, 35	Favourable
Mar. 4, ,,	256	Removal of sequestrum	Necrosis	Male, 25	do.
Feb. 25, ,,	257	Phalangeal ablation	Onyxis	Male, 18	do.
April 13, 1872	258	Phalangeal ablation	Onyxis	Female, 13	do.
Sept. 25, ,,	259	Ligature	External piles	Male, 70	do.
June 19, ,,	260	Nélaton's operation	Congenital phimosis	Male, 35	do.
Nov. 30, 1873	261	Circumcision	Congenital phimosis	Male, 8	do.
Oct. 9, 1872	262	Circumcision	Congenital phimosis	Patient, 30	do.
May 28, 1873	263	Circumcision	Congenital phimosis	Patient, 10	do.
July 9, ,,	264	Ligature	Hæmorrhoids	Male, 46	do.
Oct. 8, 1875	265	Division of sphincter	Fistula in ano	Male, 40	do.
Nov. 1, 1873	266	Wilde's operation	Trichiasis	Female, 24	do.
*Mar. 12, 1875	267	Herniotomy	Strangulated umbilical hernia	Female, 75	Successful
May 12, ,,	268	Ovariotomy	Multilocular ovarian tumour	Patient, 25	Unfavourable
May 26, ,,	269	Operation for fistula in ano	Fistula in ano	Male, 28	Favourable
May 26, ,,	270	Removal of large nasal polypus	Polypus	Male, 45	do.
Sept. 29, ,,	271	Operation for fistula in ano	Fistula in ano	Male, 34	do.
Oct. 6, ,,	272	Author's operation for hare-lip	Single hare-lip	Male, 3 months	do.
Oct. 6, ,,	273	Removal of sequestrum	Necrosis of tibia	Female, 14	do.
Nov. 17, ,,	274	Removal of sequestrum	Necrosis of tibia	Female, 18	do.
Nov. 17, ,,	275	Phalangeal ablation	Onyxis	Male, 20	do.
Nov. 26, ,,	276	Median lithotomy	Vesical calculus	Male, 46	do.
Feb. 22, 1876	277	Operation for vesico-vaginal fistula	Vesico-vaginal fistula	Patient, 26	do.
Feb. 23, ,,	278	Perineal section	Impassible urethral stricture	Male, 35	do.
Mar. 25, ,,	279	Secondary operation for vesico-vaginal fistula	Pin-hole vesico-vaginal fistula	Patient, 26	do.
May 17, ,,	280	Internal urethrotomy	Urethral stricture	Male, 42	do.
Aug. 23, ,,	281	Removal of sequestrum	Necrosis of radius	Male, 18	do.
Aug. 30, ,,	282	Operation for fæcal fistula	Fæcal fistula resulting from ileo-cæcal abscess	Male, 26	Unfavourable
Sept. 13. ,,	283	Kirkpatrick's operation	Morbus coxæ	Male, 7	Favourable
Oct. 4, ,,	284	Ligation	External hæmorrhoids	Male, 50	do.
Oct. 10, ,,	285	Ligation	External hæmorrhoids	Male, 34	do.

* This case was operated on in private practice.

MISCELLANEOUS OPERATIONS—*continued.*

Date	No.	Operation	Disease or Injury	Sex and Age	Result
Nov. 11, 1876	286	Ligature of nævus (Fergusson's method)	Lingual nævus	Male, 18	Favourable
June 29, 1872	287	Removal of a piece of wood from the palm of the hand, where it had remained for over two months	Foreign body in palm of hand	Male, 21	do.
July 7, ,,	288	Extraction of foreign body	Date stone in ear	Female, 11	do.
July 7, ,,	289	Extraction of foreign body	Date stone in ear	Female, 7	do.
July 24, ,,	290	Extraction of foreign body	Date stone in ear	Female, 8	do.
July 24, ,,	291	Extraction of foreign body	Date stone in ear	Female, 11	do.
April, 1874	292	Removal of a large piece of beef from the œsophagus	Foreign body in œsophagus	Male, 40	do.
Sept. 1, 1872	293	Reduction of luxation by manipulation	Luxation of head of femur on dorsum ilii. Duration of luxation, four weeks	Male, 56	Successful
Dec. 6, ,,	294	Reduction by Roberts' adjuster	Subcoracoid luxation of three weeks' duration	Male, 33	do.
April 6, 1873	295	Reduction by Roberts' adjuster	Subglenoid luxation	Male, 22	do.
June 7, ,,	296	Reduction by Roberts' adjuster	Subglenoid luxation	Male, 30	do.
Jan. 6, 1875	297	Reduction by Roberts' adjuster	Subcoracoid luxation	Male, 34	do.
June 17, 1872	298	Tapping	Hydrocele of tunica vaginalis	Male, 56	do.
June 19, ,,	299	Tapping	Hydrocele of tunica vaginalis	Male, 60	do.
Dec. 20, ,,	300	Tapping	Hydrocele of tunica vaginalis	Male, 33	do.
Mar. 1, 1873	301	Tapping	Hydrocele of tunica vaginalis	Male, 41	do.
May 28, ,,	302	Tapping	Hydrocele of tunica vaginalis	Male, 50	do.
July 2, ,,	303	Tapping	Hydrocele of tunica vaginalis	Male, 60	do.
Nov. 12, ,,	304	Tapping	Hydrocele of tunica vaginalis	Male, 70	do.
April 2, 1874	305	Radial cure by injection of iodine	Hydrocele of tunica vaginalis	Male, 31	do.
June 14, ,,	306	Tapping	Hydrocele of tunica vaginalis	Male, 40	do.
May 19, 1875	307	Tapping and injection of double hydrocele	Hydrocele of tunica vaginalis	Male, 50	do.
July 2, 1873	308	Kirkpatrick's operation	Cicatrix on front of neck	Male, 12	Partially successful
July 2, ,,	309	Kirkpatrick's operation	Cicatrix in axilla	Female, 10	Favourable
Oct. 1, ,,	310	Kirkpatrick's operation	Cicatrix at front of elbow	Female, 12	do
Oct. 14, ,,	311	Kirkpatrick's operation	Cicatrix between thumb and forefinger	Female, 8	Partially successful
Oct. 21, 1874	312	Excision of cicatrices	Cicatrix binding forearm to arm, so that hand almost touched shoulder; another cicatrix bound down chin to sternum	Male, 12	Favourable

ART. XIV.—*Observations on Excision of the Knee-joint; with Reports of Three Successful Cases.*[a] By JOHN FAGAN, F.R.C.S.I.; Surgeon to the Belfast Royal Hospital and Belfast Hospital for Sick Children.

MR. PRESIDENT,—I have shown you this evening three children on whom I performed excision of the knee-joint.

I consider the cases interesting, as they are, so far as I know, the only ones of the kind that have been brought under the notice of the members of the Ulster Medical Society.

I also consider it to be the duty of every surgeon, no matter how limited his experience of the operation may be, to record the result of his observations, in the hope that, by thus increasing the store of facts bearing on the subject, more definite rules than those already existing may be laid down for the guidance of surgeons on this much-vexed question.

Mr. MacCormac, of St. Thomas's, a former member of this Society, in a paper on the "Relative Merits of Excision and Amputation" (1868), says:—"There is almost no established surgical procedure regarding which such wide differences of opinion exist, or about which controversy has more hotly raged."

The first case I will record is the one I last operated on, and although on it I expended most care in carrying out all the details of the operation and after-treatment, it is the least successful of the three.

In two of the cases the operation has been done a year and a half, in the third a year.

Observations made after the lapse of so much time are of very great interest regarding one feature of the subject in the case of children—for it is urged by some as a powerful argument against the operation that after it there is arrest of growth in the limb. You will have observed that such is not the fact in the cases I have just now shown you.

CASE I.—Alexander Cardwell, aged five years, was admitted to the Children's Hospital, under my care, in the month of October, 1875.

About four months previously the mother noticed him limping in the mornings; about a month afterwards she observed the knee somewhat enlarged. She applied some simple remedies and paid no further heed to it for some weeks more, when she was advised to take the boy to the

[a] Read before the Ulster Medical Society. [For the discussion on this paper, see p. 439.]

hospital. The only cause she could assign for his state was a fall on a heap of bricks, and she supposed his knee came against the corner of one of them.

He was subjected to the stereotyped treatment followed in the subacute or chronic inflammation of joints. The joint was carefully strapped with soap-plaster and securely placed on a M'Entyre's splint. He remained under treatment in hospital for upwards of two months, when the mother had him removed.

He was re-admitted, under my care, on the 14th March, 1876, when he presented the following symptoms:—

The leg was very much flexed and wasted, the joint enlarged and globular, the ends of both femur and tibia enlarged and very painful on pressure. He was losing flesh rapidly, suffered from irritative fever, sleeplessness, loss of appetite, and had painful startings of the limb at night. His general condition improved after his admission, but that of the knee was no better. Fig. 1, Case I., is a very faithful representation of his case a few days before operation.

On the 11th of April I removed the joint in the following manner:—The child being fully under the influence of ether, and Esmarch's elastic band applied, I began my incision at the back of one condyle, and, bringing it just under the patella, terminated it at the back of the other condyle; I reflected the flap with the patella, and, having seized the latter with lion forceps, carefully dissected it out. I next freed the lateral ligaments, flexed the leg on the thigh, and pushed the tibia forcibly forwards; by this manœuvre the crucial ligaments were put well on the stretch—then, by directing the edge of my knife in a line with the tibia, I cut on its articular surface behind the spine, and in this manner severed them without in any way endangering the vessels behind.

I then pushed the end of the femur forwards and cleared it of surrounding tissue, as far as the point at which I was about to apply the saw. With a Butcher's saw I removed the lower end of the femur, in a horizontal line, from a point about a quarter of an inch below the upper edge of the trochlear surface in a direction from before backwards. I next removed a thin slice from the tibia, including little more than the articular surface, sawing from behind forwards; then, with a curved scissors and forceps, I removed all the pulpy and fatty tissue exposed in the wound. The elastic cord was next removed; I twisted a few arteries, which spouted. There was pretty free oozing from a number of articular twigs which I could not seize with the forceps, as they were buried in the adjacent fibrous tissue; there was also considerable oozing from different points of the sawn surface of the bone. To all these points I applied the actual cautery, and by this means completely arrested the hæmorrhage; I then freely swabbed the parts with a solution of chloride of zinc (gr. xv. to ℥i.), and placed two pieces of carbolised tow in the back of

Fig. 1.

Fig 2.

Case N° 1.

Fig. 1.

Fig 2.

Case N° 4.

Marcus Ward & Co.

EXCISION OF KNEE, BY JOHN FAGAN, F.R.C.S.I.

the wound with the ends hanging out at either angle, I brought the bones into apposition without any difficulty, and closed the skin wound with five points of carbolised catgut suture. The limb was then washed, dried, and dusted over with powdered oxide of zinc, and after a flannel bandage had been applied from the toes to the groin, it was placed on a splint that was already prepared for it.

Dr. P. H. Watson's plaster-splint was the one used, and I consider it the most suitable of any yet devised for the purpose. When the plaster had set I removed the child to a bed prepared for him, and ordered a little hot brandy and water, which I find to be an exceedingly good sedative for children after operations.

After closing the wound I placed an ice-bag over it, and had cold sponges applied at each angle to absorb any discharge of blood or serum that might flow from it. I left it exposed in this way for five hours, when there was scarcely any discharge. I then carefully packed all round the wound with carbolised tow, put a pad of the same material over the joint, and a bandage over all, in this way rendering the parts perfectly secure. The limb was placed on a pillow between sand bags.

April 12th.—Pulse 136; temp. 101; had a restless night; vomited two or three times; bowels moved twice. Slung the limb to-day from a Salter's swing.

13th.—Pulse 130; temp. 100·3; slept pretty well; takes plenty of milk; looks bright and happy.

14th.—Pulse 120; temp. 100; slept well; takes his food well.

15th.—Pulse 120; temp. 100·2; slept well; eats well and looks well.

16th.—Dressed the limb to-day (the fifth after operation) for the first time. There is scarcely any swelling, no appearance of inflammation, and only a slight serous discharge into the tow. The wound appears uniting by the first intention. I removed the tents from the wound, and some of the tow in contact with it that was soiled by the discharge. I introduced fresh tents, and padded round the joint as before. The boy was sitting up in bed two days after the operation, and from that time complained of no pain whatever.

30th.—Since last notice the limb has been dressed every second or third day. The wound is quite healed, his health good, and he has suffered no pain.

May 26th.—I removed the splint to-day. There was some excoriation of the skin over heel. The limb was in good position, but as the bones did not appear to be quite firmly united, I put it up again in the same splint.

June 17th.—He is very much improved in every way since last notice. He can raise the foot from the bed with ease. The limb was carefully put on a back splint, and he was taken to the country.

July 22nd.—He was again admitted into hospital. The cicatrix has

an unhealthy appearance; a sinus leads from the inner side of it for about an inch deeply under the skin, and the outer end of it for an inch has ulcerated. He is not able to raise the limb from the bed. There is no mobility, but there is evidently a retrograde condition of the connecting medium of the bones.

The treatment I employed was securing the limb firmly on a splint, applying some stimulating dressing to the wound, and giving him iron and cod-liver oil with suitable nutritious diet.

August 10th.—Was taken home to-day very much improved in health. The ulcers were not yet healed; splint still kept on limb.

September 8th.—Was again admitted into hospital. He is still improving in his health. The same treatment carried out. About a week after his last admission the cicatrix was completely healed, and, for the first time, presented a truly healthy appearance, and caused him no pain when pressed on.

He began to walk about the ward, at first with the aid of the beds, but after a little was quite independent of any support.

On the 12th October, just six months after the operation, he left the hospital quite restored to health, and with a very useful limb. The amount of shortening, on the most careful measurement, was about half an inch; and the angle at the joint just sufficient to render progression most easy.

Six months ago he left hospital a good example of a successful case of excision, as is fairly represented in Fig. 2, Case I., of the accompanying Plate.

Neglect of both his limb and his constitution has left him in the condition you have just seen him. The angle has approached more a right angle, and, as he can only approach the toes to the ground, progression is very much interfered with.

Case II.—Ellen Templeton, aged six years, was admitted, under my care, on the 1st September, 1875.

About a year and a half previously she first complained of pain in the knee, for which she was treated. Some time after she got a fall on the injured knee, making matters worse. About eight months before her admission to hospital the knee began to contract; she complained of painful startings of the joint occasionally through the day and every night when going to sleep; and for the past three or four months could not bear the weight of the body on the affected limb. Latterly her health began to break down; she had enlarged glands under the jaws, suffered from otorrhœa, and had an unhealthy strumous appearance. The joint was enlarged and globular, and very painful on pressure, especially on the outer side of the patella and over the ends of femur and tibia.

The child's general condition was much improved by her stay in hospital before the operation.

On the 28th of September I excised the joint in the manner described in the last case, except that I did not use Esmarch's band, nor apply the cautery so freely.

There was a considerable loss of blood during the operation, and about four hours after it I was sent for, as she was in a very restless and weak condition. The sheet was soiled with blood, which I found was coming out between the upper end of the splint and the buttock.

I removed the bandage and tow-dressing from the wound, and found slight oozing from its internal angle; as the quantity coming away was slight, I did not further interfere, but left the part exposed, applied an ice-bag, ordered a sedative draught, and a little iced milk and brandy for drink.

29th.—She slept a little through the night. There was no further bleeding. Pulse 156; temp. 99·6; she looks brighter. I stopped cold application, and applied a pad of carbolised tow and a bandage.

30th.—Pulse 154; temp. 100; slept pretty well; vomited a couple of times; started occasionally in her sleep, and complained of pain in the knee.

October 1st.—Pulse 146; temp. 99·4; slept well; had her bowels moved; took an egg for breakfast, and had some milk and brandy through the night. I looked at the wound to-day, and found it so healthy, and with scarcely any discharge from it, that I did not consider it necessary to remove the dressing. She complained of an itching sensation in the groin under the splint; this, I believe, was due to the irritation caused by the hæmorrhage and cold applications after the operation.

3rd.—Pulse 138; temp. 100; is much improved in every way. I dressed the wound to-day; it was nearly healed up by the first intention, except at angles where the tents were kept in for drainage. There was no swelling or inflammation about it.

From this date the case progressed favourably. The wound after a short time was entirely healed; and on the 29th November—just two months after the operation—I removed the splint.

There was slight abrasion of skin over dorsum of foot and back of thigh, which healed in a few days.

Notwithstanding the fact that the splint and dressings were saturated with blood, and the cold applications used to check the hæmorrhage, no uneasiness followed; it never interfered with the satisfactory progress of the case. The union seemed to be perfect. I put the limb again on a splint, and in about a fortnight allowed her to move about on crutches.

She left the hospital about four months after the operation.

A slight abscess formed over the head of the tibia, but after being opened gave no further trouble.

It is now a year and a-half since the operation was performed.

The limb is about half an inch shorter than its fellow. She has been

attending school and enjoying herself at her games like other children. Her general health has been the best, and the limp in her gait is the only apparent evidence of her having undergone so serious an operation as excision of the knee-joint.

Case III.—Ellen Wilson, aged nine years, was received into the Belfast Hospital for Sick Children, in August, 1875, and placed under my care.

Her mother gave me the following history:—Three years previously she was thrown over a form at schooland got her knee hurt; it was painful and lamed her for a considerable time.

She used a liniment, but was not particular in keeping the limb at rest.

About a year and a-half ago she was in the habit of skipping a great deal, and again complained of pain in the injured knee. Whatever treatment was employed gave her temporary relief.

Nine months before I saw her the limb began to contract. She was placed under a doctor's care for some time, but as she was gradually getting worse, the mother had her removed to hospital.

The condition of her joint was the same as in the first case, but her constitution was much healthier.

On the 15th September I removed the joint in the manner already described; no bad symptoms occurred during her progress towards recovery. I removed the splint on the 4th November. Union was perfect.

Three weeks after this I allowed her to get about on crutches, and she left the hospital, able to walk without any support, between three and four months after the operation.

It is now a year and a-half since the operation. There is about half an inch shortening. She is the type of a healthy child, and can walk any reasonable distance without being fatigued.

The pathological condition of the joints was what is usually observed as the result of chronic inflammation.

The tissues around the articulation had degenerated and were infiltrated with gelatinous matter. Inside the joint the synovial membrane was in some parts thickened and pulpy, in other parts highly vascular, and extended in fringes over the cartilages. The cartilages in most parts had lost their polish, and showed here and there pinhole depressions.

In Cases I. and II. the cartilages suffered most, being completely absorbed at one or two points, and at others very much thinned. In Case II. there was a small circumscribed abscess in the joint, as well as considerable disease in the end of the femur. After

removing the recognised extent (by the saw) I had to use the gouge to remove two carious spots—one in the centre, the other at the side extending up to the epiphysis.

In all the cases the side of the cartilage resting on the bone had depressions over it, into which projected little masses of granulations. The articular lamella was highly vascular, and, in parts, softened, and was easily removed from the super-imposed cartilage. The ligaments in some places were degenerating, and, in Case II., the crucial were partly destroyed.

Before making any remarks on the subject of excision, I will give the history of a case of chronic knee-joint disease treated by the expectant method. It is a typical one of a very large class, and will serve to illustrate my remarks on the subject further on :—

Case IV.—Thomas Shannon, twelve years of age, was admitted into hospital three years ago, suffering from disease in knee-joint. About a year previous to his admission he fell down the school stairs and hurt his knee. No special care was bestowed on it; the mother thinking he was affected with "growing pains." However, as the pains and swelling of the joint increased, and the limb began to contract, she took him to hospital.

After two months' stay his general condition was very much improved, but the state of the joint was much the same. At this period I proposed excision, but the parents would not consent to it.

Fig. 1, Case IV., conveys a pretty accurate notion of his state at that period.

He was removed to the Throne Hospital, and remained there for nearly six months.

The greatest care was bestowed on the treatment of the joint affection, while he was exceptionally well-circumstanced for the improvement of his general health. Notwithstanding, the disease slowly progressed, the joint became more swollen and tender; the painful startings more frequent and severe. A small abscess formed just under the knee, but did not communicate with the joint. After he had spent a year in hospital the mother took him home, when he got rapidly worse. Suppuration of the joint took place, sinuses formed around it, the leg became contracted on the thigh, his constitution was completely worn down by suppurating fever, and a year after leaving hospital he was re-admitted to have the limb amputated. Fig. 2, Case IV., is a good representation of his state at this time.

After he was a few days in hospital some ignorant friends prevailed on the mother to prevent the limb being removed.

Since that time he has been dragging out a miserable and painful existence.

The probabilities are that he will very soon die from the effects of the disease, or, if he should survive, it will be with a shattered constitution and crippled for life.

You will have observed, Mr. President, from my report, that in each case the disease originated in the receipt of some slight injury, and that the destructive changes commenced in the articular ends of the bones, the inter-articular tissues becoming secondarily engaged. Also, that the subjects of my operations were under nine years of age, a period when any interference with the growth of the bone would be detrimental to the use of the limb in after-life.

In treating the subject of excision, I will direct myself more especially to the consideration of these points, as well as to some of the conditions that should influence the surgeon in the selection of his cases for this operation.

Excision of the knee-joint is not a new operation. Mr. Filkin, of Northwich, performed it as far back as the year 1762; and although practised occasionally by some of the more advanced surgeons of the French school, it was only lately, through the labours of Sir William Fergusson, that it became an established surgical procedure in this country.

Like every other novelty in the domain of medicine, as well as surgery, excision of the knee became the fashion, and its indiscriminate application by some surgeons to all kinds of knee-joint affections brought the operation into disrepute.

This developed another party—the anti-excisionists—who discountenanced the operation altogether, and a hot contest was carried on for some time between the advocates on both sides.

At the present time excision of the knee as an operation is looked upon by surgeons as a justifiable procedure in conservative surgery.

To my mind, successful results depend mainly on the careful selection of cases; the important point the surgeon has to decide on being, what is and what is not a suitable case for operation.

The surgeon who views his cases with a mind free from prejudice will meet amongst them some that are suitable for the expectant treatment, others for excision, and others for amputation; and in recommending each of these methods as he sees fit, he will best serve his patient's welfare, and will not bring any special line of treatment into disrepute.

Mr. Spence, in the last edition of his Surgery, when comparing the results of his first operations with those lately performed by him, says:—"This favourable change in the results of my excisions

of the knee, is, I believe, greatly due to the experience of former years having led me to exercise great care in selecting proper cases for the operation, and in eliminating those in which the nature of the disease or its complications, the age, or debilitated state of the patient, seemed unfavourable for such an operation."

In making a selection, three points have to be taken into consideration—viz., the state of the constitution, the condition of the joint, and the age of the patient. A careful examination of all the organs should be made, and the surgeon influenced by the result.

The more healthy the constitution, the more favourable is the case for the operation.

Regarding the condition of the joint, it is found that the operation is most fatal in cases of injury and acute disease.

In the treatment of the subacute or chronic disease as ordinarily met with, the nice point for the surgeon to decide on is—in which stage of the disease, and under what circumstances, should he adopt the expectant method, in which recommend excision or amputation. We may here dispose of the two extremes of this condition. In the initiatory stage the expectant is the best and only justifiable means of treatment; while in the advanced condition of the disease, where the bones are involved beyond the epiphysis, the soft parts degenerated and riddled with sinuses, and the constitution depraved, amputation is the only mode of treatment that ought to be entertained.

The cases that require most careful consideration before recommending any particular line of treatment, are those holding a middle position, of which there are two kinds. One, generally known under the name of "white swelling," has been fully described by Sir B. Brodie.

In this condition the disease begins in the synovial membrane, is usually idiopathic, progresses silently; in many cases there is an entire absence of painful symptoms, and the constitution is generally depraved. I have frequently met with such, but have no experience of the treatment by operative interference.

Mr. Barwell recommends a stimulating treatment—such as friction, passive motion, and iodine injections. I am disposed to agree with Mr Holmes in advocating excision in this class of cases, where the bones are not very extensively involved, and the constitution fairly good.

The other condition of joint belongs to a class of which the cases I have shown you this evening were fair examples when first

brought under my notice, the symptoms and pathological condition being somewhat alike in all of them.

The disease, originating in some trivial injury, manifested itself as an articular osteitis—the cartilages, synovial membrane, and ligaments being secondarily involved.

I may here remark that if more care was bestowed on the simple joint-injuries occurring to children—by twists and blows, falls down stairs, off chairs and tables—we would witness fewer painful cases of disorganised knee-joint than present themselves so frequently at our hospitals.

The course I pursue in cases similar in their nature to the ones I have shown you, is as follows:—

If the symptoms are not very urgent and point to the disease as limited to the articular ends of the bones, or involving but slightly the other joint structures, I adopt in every case the expectant method; if, after a fair trial of this, the condition is much the same, or but slightly improved, I am mainly influenced in the further treatment of the case by the social condition of the patient.

Amongst the well-to-do classes the patient has all the advantages of suitable appliances, is placed under skilled supervision, and, most important of all, the courses of treatment can be continuously carried out under the most favourable hygienic conditions.

Contrast this with the case of the child of the poor person similarly affected. If treated in hospital he may be discharged after a lengthened stay very much improved, or, to all appearance, cured, but want of care on the part of ignorant parents, a too-early return to his employment or his active games, together with want of proper nourishment for his originally feeble constitution—all tend to light up again the smouldering embers of the disease, and he returns to hospital a second time in a worse condition than the first.

While in the one case there is a fair prospect of a cure by natural processes after a lengthened period of treatment, in the other such prospect is but very slight, and, I believe, that for it excision of the joint before the disease has advanced too far, and while the constitution keeps good, is the best method of treatment to adopt.

No matter how favourable the surroundings, if after a fair trial of the expectant method the symptoms increase in severity, and the condition of the patient be gradually becoming worse, both as regards the local affection and the general constitution, excision of the joint is, I believe, the best and only line of treatment that should be recommended.

The train of symptoms and ultimate result are well exemplified in Case IV., which is a good type of its class. In it the expectant treatment was rigidly carried out for a considerable time. Excision was proposed at a suitable period, and rejected; amputation at a later period was proposed, and rejected; and, from the mother's statement a few days back, I believe the boy to be in a dying condition.

Of the many objections that are urged against the operation, I will now deal with one that is considered a strong one in the case of children—viz., that there is an arrest of growth in the limb. Dr. Watson, an authority on the subject, says:—"In children I have hitherto regarded amputation as a preferable operative procedure, and shall continue to do so until I have had satisfactory evidence that the limb grows, or that the short and shrunken limb is capable, with the aid of a wooden pin, to support the weight of an adult body more satisfactorily than a thigh stump and a wooden leg."

You have, in the cases exhibited here this evening, evidence that the operation can be performed without interfering with the growth of the limb. Two of the cases are good examples of the splendid results that may be obtained by the operation, and their shapely and useful limbs would form a pleasing contrast with the results of the expectant treatment, or amputation, as exemplified by a wooden leg, or a crippled limb and a shattered constitution.

In my description of the operation you will have noticed that I was careful in making the section of bone wide of the epiphysial cartilages in both femur and tibia; by so doing I avoided interference with the main source of the growth in the bones, while I effectually removed the diseased structures.

In Case I. the ultimate result is not so satisfactory as I anticipated; the usefulness of the limb will be interfered with owing to the bad angle at which it is placed.

This condition I do not attribute to any fault in the operation. You will remember that his convalescence was rather tedious, and that a considerable time after the wound was healed and the bones firmly united, the cicatrix ulcerated, and the bond of union between the bones began to degenerate.

Under general tonic treatment and rest he improved, and left the hospital, after a lengthened stay, in quite as good a condition as the other two cases. When leaving I put the limb up in a Bavarian splint, and cautioned the mother not to let him put his foot to the

ground, but to get about on crutches. The child was neglected and let do pretty much as he liked. Through want of care and nourishment the constitution became impaired, and the same degenerating changes began to take place in the bond of union between the bones, while the weight of the body forced the limb into the angle at which it is now set. This degenerating change in the new connecting medium I look on as analogous to rickets, and should be treated in a similar manner to that affection.

As regards special treatment in this case all, I think, that can be done for him at the present time is to try and prevent his condition getting worse, and then, after the limb has attained its full growth, the propriety of straightening it by taking out a wedge-shaped piece of bone may be entertained.

His case is very instructive, as showing the necessity there is for the greatest care being bestowed on every case, not alone as regards the immediate after-treatment, but until such time as that there can be no doubt about the healthy character of the connecting medium.

I feel that this paper has reached to too great a length for one evening, notwithstanding I have passed over a host of important points in connexion with the operation. There is one other point I will notice before concluding—viz., the comparative mortality of excision and amputation.

A very great deal has been written on this aspect of the subject, and elaborate statistics compiled to suit the advocates of either operation; and after puzzling oneself with piles of evidence for and against, it is refreshing to light on the following expression of opinion of so able a surgeon as Sir W. Fergusson:—

"Allowing, however, that excision was somewhat more fatal, supposing that one life was lost for every six legs saved, was not the gain worth the risk?

"It was partly a question for the patient. Instrument-makers had certainly contrived some most ingenuous and elegant limbs of cork, willow, and ash; but people, as a rule, preferred the old-fashioned flesh and blood article, and were willing to run some risk in order to retain it."

Art. XV.—*A Case of Progressive Pernicious Anæmia.* By J. M. Purser, M.D.

Progressive pernicious anæmia is a disease of considerable rarity in Ireland. I have myself never seen an example of it here, except that which I am about to relate; and, so far as I know, no instance of it has hitherto been recorded as occurring in this country. Besides its rarity, the following case seems to me to present sufficient interest to make its publication justifiable:—

M. F., aged sixty, was admitted into Sir Patrick Dun's Hospital early in August of this year. She was a married woman and had had several children. She had lived in the country all her life, and had always been in very comfortable circumstances. For the last twenty years she had been in service as cook. She had never had any illness before the present. She states that she was in good health until two months before her admission, when, while making an effort, she was attacked by faintness. Immediately after this her colour was observed to change. She at first became dark-brown or black, and, subsequently, very pale. She worked for six weeks, when increasing weakness obliged her to give up. She had been from the first under medical care, but, deriving no benefit, she came up to Dublin, and was admitted into hospital.

She came under my charge on the 1st September.

She is a largely-made woman; hair perfectly white. Extreme anæmia; not the least trace of jaundice. Body well covered by fat; no œdema; no fever. Tongue large, pale, and flabby; no appetite. Complains of frequent attacks of pain in the abdomen, extending from the epigastrium to the back and lumbar regions. This pain is generally increased by taking food, and occurs in paroxysms, sometimes of great severity. There are frequent sickness of stomach, and vomiting. The vomited matters consist, besides the food last taken, of a clear yellow fluid and mucus. Bowels generally constipated. No symptoms referable to heart and lungs. Urine abundant, acid, high-coloured; on standing, throws down a light cloud, containing merely a few epithelial cells and mucus corpuscles. Sleeps well, except when kept awake by pain, which often occurs at night. Is extremely weak, so that she cannot leave her bed. Is very uncommunicative and irritable; submits herself with reluctance to examination, and can be made, only with difficulty, to describe her symptoms. Percussion-sound over lungs normal. Respiratory murmur pure in every region. No evidence of enlargement of the heart. Rhythm perfect, about 70. A soft systolic murmur, loudest at the base and at the left side of the sternum, in the region of the pulmonary artery. Venous murmur in the neck. Walls of the abdomen flaccid, but very

fat. The gentlest touch throws the muscles into contraction, which makes examination difficult. Patient complains of soreness of the abdomen, chiefly of epigastrium. A tumour about the size of a walnut, and having the characters of a fatty tumour, to be felt immediately to right of umbilicus, evidently in abdominal wall. Besides this no tumour is to be felt. The liver extends slightly below the arch of the ribs, and its left lobe causes a general feeling of resistance in the epigastrium. Spleen cannot be felt. Pulsations of aorta very perceptible, maximum just above umbilicus. Urine high-coloured, free from albumen.

During September no fresh symptoms appeared. The anæmia and feebleness increased, and the attacks of pain became more frequent and severe. The sickness of stomach became almost constant, the vomited matters being small quantities of yellow fluid.

On the 3rd of October a drop of blood was taken from the finger for microscopic examination. Even to the naked eye the extremely watery character of the blood was evident. The red corpuscles were remarkably few, and showed no tendency to cohere in rouleaux. They differed among themselves remarkably in form and size. Comparatively few were of the normal size and shape; most of them presented tail-like processes or projections; several were oval, and many were bowl-shaped—one side being convex, while the other maintained the normal concavity. There was a considerable number of very small red bodies, from one-third to one-half the normal size. Some of these were spherical, others flattened. There were a few corpuscles, mostly oval, of greater than the normal size. No nucleated red corpuscles could be seen. The white corpuscles were few, but presented no abnormality. There were a few colourless granular masses floating in the plasma. On this day the patient, who was extremely weak, complained of seeing "flies and midges" before her eyes.

On the next day, for the first time, a few punctiform ecchymoses were observed on the arms and front of the chest.

On the 6th October she died. The pulse, which had been throughout full and not remarkably soft, became—for twenty-four hours before death—rapid, small, and jerky.

Post mortem examination, nineteen hours after death.

Body extremely pale. A few small punctiform ecchymoses on arms and trunk; on right forearm two faint blue marks like bruises. Cicatrices of two small ulcers on anterior and outer part of left leg. No œdema. Depending parts of body presented slight, but distinct, gravitation lividity. Unusual forward curvature of lumbar vertebræ (lordosis). On placing the hand on the surface of the abdomen, the spine seemed to lie immediately under the abdominal wall. The small tumour, noticed during life, to be felt near the umbilicus. Rigor badly marked.

Cranium not thick, but dense and heavy—in some spots so firmly adherent to dura that the latter had to be removed with the bone.

Dura in spots opaque and thickened. The points where the bone was adherent presented no evident thickening. No adhesions between dura mater and arachnoid, or thickening of the latter. Longitudinal sinus empty in its anterior part; posteriorly occupied by a loose pink clot. Lateral sinuses contained fluid blood. Other sinuses empty or containing fluid blood in small quantity. Cerebro-spinal fluid clear and in considerable quantity. Surface of brain remarkably pale. *Pia mater* not thickened or inflamed; separated readily from surface of hemispheres. *Vessels* at base presented spots of atheroma, and were empty. Ventricles contained a small quantity of clear fluid. Except extreme anæmia, the *brain* did not present anything abnormal; neither in its substance nor in its membranes were any ecchymoses found.

The roofs of the orbits were removed, and the posterior halves of the eyes examined. In each *retina* were several small ecchymoses. These were most numerous about the entrance of the optic nerve, where they were long and narrow, and arranged in a radiating manner; nearer the periphery they were few and of irregular shape. There were no opaque spots in the retina, except one extremely minute yellow point in the centre of one of the extravasations on the left side.

Subcutaneous fat in very large quantity—at least 1½-inch thick on anterior surface of abdomen—of a bright yellow colour. A mass of fatty omentum protruded through an opening immediately to the right side of the umbilicus. It was contained in a hernial sac, lined by peritoneum, and which lay altogether in the subcutaneous fatty tissue, thus forming no protrusion on the surface. The omentum was not adherent to the interior of the sac, but closely attached at the neck to about one-half the circumference of the latter. The omentum and mesentery were loaded with yellow fat. In the *cavity of the peritoneum* were a few ounces of clear yellow fluid. There was no appearance of recent inflammation. The surface of the peritoneum, in general, was pale; but in both iliac fossæ it was very extensively ecchymosed, the blood lying, apparently, both in and under the serosa. Ecchymoses, in smaller numbers, existed in Douglas' space, on the peritoneal surface of the bladder, and in the mesentery of the sigmoid flexure and lower parts of colon on both sides. Uterus lay considerably to the right side.

In removing the sternum, the venæ innominatæ were cut. A few drops only of pinkish watery blood flowed from the wounded vessels.

Lungs collapsed badly; *pleuræ* were absolutely free from adhesions, pale, not ecchymosed, and the cavities contained only a few drops of serous fluid.

Pericardium, free from adhesion or other sign of inflammation, contained about an ounce of clear yellow fluid. Parietal pericardium free from ecchymoses. On left ventricle, near the base, a few small subpericardial extravasations. *Heart* slightly enlarged, soft, flabby, uncontracted.

Subpericardial fat in considerable quantity. White spots (spots of Baillie) on anterior and diaphragmatic surfaces of right ventricle. The cavities of the heart on each side contained a small quantity of dark-coloured blood, mostly fluid, but partly coagulated. The coagula were in part decolorised, and lay loose in the cavities of the ventricles. The fluid *blood*, collected and allowed to stand, quickly separated into a dark red sediment and a clear reddish serum. The bulk of the former was to that of the latter as about 1 to 2. No distinct layer of white corpuscles was formed on the surface of the red. The blood, which was removed fluid, did not at any period after removal show a tendency to coagulate. The whole quantity collected from the heart and great vessels was very small.

Auriculo-ventricular orifices of normal size. The cavities of the heart were slightly dilated, and the walls, specially that of the left ventricle, were somewhat thickened. The muscular tissue of the walls very anæmic, of pale yellowish-brown colour, but of firm consistence. There were no ecchymoses in the thickness of the muscular walls or under the endocardium. On the musculi papillares of the left ventricle were a few opaque yellow spots and streaks. Elsewhere no appearance of fatty degeneration. Valves on right side healthy. Mitral valve presented, on its anterior curtain, some opaque and thickened spots of atheroma. Aortic valves slightly thickened. All valves perfectly competent.

Aorta dilated, inelastic, atheromatous. This change was most marked in the abdominal portion, where the vessel passed (and may be supposed to have been stretched) over the convexity of the lumbar vertebræ. Here, on the posterior side of the tube was a patch about $1\frac{3}{4}$-inch long by 1 inch broad, where there was calcification and breach of the inner coat. The large vessels coming off from the aorta were also dilated and atheromatous. There was an irregular right subclavian artery, which, coming off from the arch beyond the origin of the left subclavian, passed to the right behind the œsophagus.

Lungs.—Upper lobes remarkably dry and bloodless, of a mottled grey colour, and emphysematous, particularly along the edges. Lower lobes, specially that of right, of a pale pinkish colour. From the section a large quantity of clear frothy fluid could be expressed (œdema). Vessels contained very little blood. Bronchi pale. Lungs were of remarkably light weight.

Bronchial glands, dark coloured, of normal size and firm consistence.

Œsophagus healthy.

Spleen, externally of a dark greenish-black colour, becoming a reddish-purple after exposure to the air. The capsule was thickened irregularly. The convex surface of the spleen was turned forwards, and adherent by about half its surface to the under (posterior) surface of the left lobe of

the liver by old firm adhesions. Section of spleen, dark coloured. Malpighian bodies, few, small, and indistinct. Pulp appeared in small quantity, and looked dry and atrophic. Fibrous tissue abundant. Consistence of whole organ flabby but tough. Dimensions—length, 12·5 cm.; breadth, 7 cm.; thickness, 3·5 cm.

Kidneys surrounded by a large quantity of yellow fat. Capsule separated readily; surface of kidney smooth, of a dark greenish-black colour uniform on all parts, and altogether different from the green colour so frequently seen on anterior surface, and due to apposition with the colon. On careful examination the surface could be seen to be marked up into small polygonal spaces, each having a darker centre and a somewhat lighter-coloured periphery, the whole having an acinose appearance, in some degree resembling the surface of the liver. In some places the stellate veins were apparent as fine streaks of a pale pink colour. The appearance on section was very remarkable. The pyramids were very anæmic, of a yellowish-white colour; from their bases the pyramids of Ferrein, also of a pale colour, passed off into the cortex, while the portions of the latter between these were everywhere of the same dark colour as the surface. In fact, with the naked eye it was clear that the pigmentation was confined to the convoluted tubes—an observation which, as will appear below, was confirmed by microscopic examination. The appearances were identical in the two kidneys.

The mucous membrane of the renal pelvis was pale. In no part of the kidneys or their capsule could any ecchymoses be found.

Bladder contained about 6 oz. of dark-coloured somewhat turbid urine. Mucous membrane pale and healthy.

Supra-renal capsules presented nothing abnormal.

Duodenum contained a turbid yellow fluid, which also existed in small quantity in the *stomach*. The coats of the latter viscus were very thin, particularly the mucosa. Common *bile-duct* free. *Liver* very long, particularly the left lobe, which stretched into the left hypochondrium and was adherent to the spleen. Right lobe extended a couple of fingers' breadth below arch of ribs; surface smooth; section remarkably bloodless; acinose structure indistinct. Except anæmia, the organ presented no structural change. Gall bladder contained some ounces of dark-coloured bile.

Small intestine contracted, and, with the exception of some mucus, empty. Solitary glands not apparent. Peyer's patches very distinct; the follicles being of a dark grey colour, but not enlarged.

Large intestine contained a good deal of fæces of normal colour and consistence. Mucous membrane of intestine throughout, pale and free from ecchymoses.

Mesentery loaded with fat. Mesenteric glands not enlarged.

Pancreas presented nothing abnormal.

Uterus healthy. *Ovaries* atrophied. On left side, at orifice of Fallopian tube, were three or four small cysts, about the size of peas, containing a clear fluid.

Vagina healthy.

Muscles anæmic, but not otherwise altered; bulk of muscles not remarkably reduced.

Medulla of sternum, ribs, and lumbar vertebræ, of soft uniform consistence, and reddish-brown colour. The cancelli seemed larger and more numerous, and the bone trabeculæ slighter and fewer than normal. The medulla in the left femur resembled that in the spongy bones. There was no trace of yellow marrow.

Microscopic examinations were made of the blood, spleen, bone marrow, kidneys, and heart.

In the *blood* the same variety in shape and size of the corpuscles was found as had been observed before death. Careful examinations of a great number of preparations failed to detect a single nucleated red cell. Many cells were oval and larger than the normal corpuscles. The following are some measurements of these oval cells:—0·0113—0·0075 mm.; 0·0125—0·0062 mm.; 0·0125—0·0087 mm. Others were about the normal size, and a very large number were much smaller than these, and spherical—many of them not exceeding 0·0025 mm. in diameter.[a] Besides this variety in size, there was the greatest possible want of uniformity in shape. Some corpuscles were the usual flattened biconcave discs, but these were a minority; many were oval, with smooth contours; others spherical—these generally of the smaller kind; while others were of quite indescribable forms, presenting all kinds of projections from their edges, and of irregularities of surface. There was not the slightest tendency to cohesion of corpuscles with one another. The white corpuscles were few—seldom more than one or two in a field (Hartnack, $\frac{3}{8}$). They did not offer any abnormal appearance.

Fragments of the fresh *spleen* gave numbers of blood corpuscles like those above described, and the usual elements of the spleen tissue, lymphoid corpuscles, and the peculiar endothelial cells of the veins. No nucleated red cells, and no blood corpuscle-holding cells were found in numerous specimens examined.

The *bone medulla* presented similar characters in all the four bones examined. It was seen to consist of coloured and colourless cells. The latter varied much in size. Some were smaller than white blood corpuscles, others were 0·0250 in diameter, and transitional forms of all sizes

[a] Max Schultze gives the diameter of normal corpuscles as 0·008—0·010 mm. He describes small, spherical, coloured bodies as occurring in the blood of healthy men in variable numbers, and having a diameter of from 0·005—0·006 mm. In normal blood there are usually no such small bodies found as those described above. Archiv. f. Mik. Anat. I., 35.

occurred abundantly. These cells were generally spherical, but some were oval, and a few irregularly shaped. Their protoplasm was granular, generally coarsely so, and each cell contained one or more nuclei, visible without the use of reagents. These were less coarsely granular than the surrounding protoplasm, distinctly double contoured, and contained one or more nucleoli. The shape of the nuclei was generally round or oval, but sometimes constricted in the centre. The position of the nucleus in the cell was usually excentric. Two nuclei in one cell were not uncommon. A greater number than two was rare. Cells containing "budding nuclei" (cellules à noyaux bourgeonnants)[a] were not seen either in the fresh marrow, or after treatment with dilute alcohol and picrocarmine. Myeloplaxes, also, were not met with, notwithstanding the very large number of preparations examined.

The coloured cells were of two kinds, nucleated and non-nucleated. The latter, in part, resembled those already described as occurring in the blood; but the very small particles were less numerous in the medulla. On the other hand, cells larger than any found in the blood existed here; and cells constricted in the middle were not uncommon. The nucleated cells, also, differed much among each other. The greater number were spherical or oval. They contained nuclei of two kinds, coloured and uncoloured. The coloured nuclei were of very finely granular appearance, without nucleoli. They were round or oval, and lay generally excentrically. Each cell contained, as a rule, only one nucleus, but two or even three sometimes occurred, and then the individual nuclei were smaller than when only one was present. The following are some measurements of red corpuscles and their nuclei:—0·0150, nucleus 0·0075; 0·0162, nucleus 0·0100; 0·0162—0·0100, nucleus 0·0062—0·0050. Besides these corpuscles with coloured nuclei, were others whose nuclei were uncoloured, much more distinctly granular than the coloured nuclei, and in general larger, as a rule spherical in shape, and in many cases surrounded more or less completely by a thin zone of protoplasm also uncoloured. In fact, these nuclei resembled in every respect those of the smaller colourless cells of the medulla. They always lay very excentrically in the red cell, generally touching the edge, which they often seemed to bulge outwards, and, in a great many instances, the nucleus, with its protoplasm, projected distinctly from the red cell, being only partially contained within its substance. This appearance was seen so frequently and so regularly, as to put altogether out of the question an accidental adhesion of red and white cells; and, besides, the careful use of the fine adjustment, and the different views got by making the object roll, proved beyond doubt the actual inclusion of the one body within the other.

Large colourless cells containing red corpuscles, in numbers varying

[a] Ranvier. Traité technique d'Histologie. P. 322.

from one to nine, were very numerous. Endothelial cells, singly or coherent, were not unfrequent, and almost invariably contained a number of black pigment grains grouped about the nuclei. Very few fat-holding cells were seen, even in the medulla of the femur. Long octahedral crystals were met with in the medulla of the spongy bones, but not in that of the femur.

Sections of the *kidneys* fresh, and after hardening in alcohol, showed that the pigment to which the organs owed their dark colour existed only in the convoluted tubes. It occurred in minute grains, which lay in the epithelial cells, and were most numerous in the inner portion of each cell or that turned towards the lumen of the tube. In fresh preparations it could be seen that the coloured grains lay more or less regularly in lines, holding a radial direction to the axis of the tube. The pigment was strictly confined to the convoluted tubes; the pyramids, the medullary rays, and the Malpighian dilatations were perfectly free. As a proof of the good state in which the kidneys were obtained, it may be mentioned that, in scrapings from the freshly-cut surface, long masses of epithelium, from the different portions of the tubes, were obtained, in which the character of the cells peculiar to each was distinctly visible—notably the rod epithelium of the ascending portion of Henle's loops. In every respect the kidneys appeared perfectly healthy.

Sections of the fresh kidney placed in water, and freely exposed to the air and light, lost their colour in the course of a few hours. Mounted in salt solution and covered with thin glass, but not cemented, and placed in the moist chamber, they preserved their colour upwards of forty-eight hours; those parts of the sections which projected from under the cover glass fading sooner. A pretty strong solution of potash did not affect the colour which, even after the sections had become transparent and pulpy, was still distinct. Acetic and hydrochloric acids bleached the sections at once. Ether and alcohol did not immediately affect the colour. Pieces of kidney which lay for a week in spirit were considerably paler than at first; but the difference between the two portions of the cortex was still distinct. Pieces which were placed in Müller's fluid lost their colour in a few hours. Under the microscope it was not very easy to follow the action of acids on the granules, which at once became pale when they came in contact with the reagent, and so indistinct that it could not positively be said whether they were dissolved or not. It appeared to me, however, that the solution, if it did occur, took place slowly.

Sections of the kidney hardened in alcohol, and which had nearly lost their colour when treated with a solution of ferrocyanide of potassium and hydrochloric acid, at once became a bright blue tint, the colour being due to blue granules, accurately limited to the epithelium of the convoluted tubes. Sections placed for twenty-four hours in dilute hydrochloric acid, gave no colour when subsequently treated with ferrocyanide of

potassium. The acid in which they had lain assumed a blue colour with the reagent.

The muscular tissue of the *heart* was generally healthy, excepting a slight degree of brown degeneration. The granules were few, and confined to the immediate neighbourhood of the ends of the nuclei. In the opaque yellow portions of the papillary muscles the tissue was in a complete state of fatty degeneration.

The microscopic examination of the *bile* was without result, granular masses, mucus and epithelial cells only being found.

There are several points in this case which call for comment. The account of the origin of the illness differs from that usually given. All writers agree in stating that progressive pernicious anæmia begins very insiduously, so that the patient cannot tell when the departure from health first takes place. Here, on the other hand, the disease is said to have commenced suddenly. I think, however, much weight cannot be placed on this, for when we take into account the extraordinarily unobservant character of the lower orders of Irish patients, we may readily suppose that this woman's health had been failing for some time, and that it was only when called on to make an unusual effort that her attention was directed to her feeble condition. As to the story of her becoming of a black colour, I regard it as altogether apocryphal. She may have been jaundiced; there are cases recorded where jaundice has been an early symptom.[a] But it is more likely that her companions mistook her pallor for jaundice, and that some talk about "black jaundice"—a disease supposed by the Irish to be peculiarly fatal—may have put the idea into her head that as she was very ill she ought to be black. She stated that, although her fellow-servants told her she was becoming black, she never had the curiosity to look in the glass in order to confirm their statements.

When the patient came under my care I formed the opinion from the first that she was suffering from one of two diseases, either pernicious anæmia or carcinoma, most probably of the stomach. I confess I at first inclined to the latter view, and for the following reasons:—1. The great rarity of pernicious anæmia in this country. 2. The age of the patient—the disease usually attacks persons in the prime of life, from 20 to 40.[b] Quincke[c] records the only

[a] Case of Idiopathic or Progressive Pernicious Anæmia treated Unsuccessfully by Phosphorus. By J. B. Bradbury. Brit. Med. Jour., 1876. II., 848.

[b] Immermann. Ziemssen's Handbuch d. spec. Pathologie u. Therapie XIII. I., 622.

[c] Volkmann's Sammlung klinischer Vorträge. No. 100.

instance I am acquainted with occurring in a child, aged 11, and two cases of persons advanced in life, one aged 56, the other 59, both women. Scheby-Buch[a] gives an instance in a woman aged 60—this is, so far, the greatest age at which progressive anæmia has been observed. 3. The absence of fever; fever of an irregular continuous type has been present in most of the cases hitherto recorded (Immermann); it was, however, absent in some of Quincke's cases, and in mine, notwithstanding repeated observations, a higher temperature than 99° F. was never noticed. 4. The absence of œdema. 5. The absence of hæmorrhages. 6. The severe pain in the abdomen. Dyspeptic symptoms and vomiting have been noticed in almost all recorded cases; but, so far as I know, severe and long-continued pain has not been before observed. Unless it can be explained by the adhesion of the liver and spleen, I cannot account for it.

On the other hand, against the diagnosis, carcinoma, were—1. The absence of tumour; but from the extreme sensitiveness of the patient, her great dislike to be examined, and from the remarkable irritability of the abdominal muscles,[b] a thorough examination of the abdomen presented great difficulties; and, 2. The absence of hæmorrhage from the stomach. As the case went on, my opinion inclined more and more towards pernicious anæmia, and after the examination of the blood, and still more when the petechiæ appeared, there was no longer room for uncertainty. There can be no doubt that if the eyes had been examined, and if the blood had been investigated at an earlier period, the diagnosis might have been much sooner made. It was not either from ignorance or carelessness on my part that this was not done, but purely from feelings of humanity. The patient's condition was, from the first, so deplorable and so manifestly hopeless that I refrained from pushing my examination further than was absolutely essential.

It can scarcely be said that treatment effected much in this case. All attempts to give medicine or nourishment failed in consequence of the uncontrollable irritability of stomach. All the usual methods to check this were resorted to without success. Iron was given at first, but seemed to disagree, and was stopped for some two or three weeks before her death. Latterly she got opium in pills at night, and subcutaneous injections of morphia when in much pain.

[a] Virchow und Hirsch. Jahresbericht, 1876. II., 264.

[b] Exaggerated muscular irritability was noticed also in Bramwell's case. Med. Times and Gazette, Sept. 22, 1877. P. 323.

It would have required a stronger faith in therapeutics than I possess to have made me resort either to transfusion or to phosphorus in this case. The success of the first mode of treatment has not been encouraging. All the cases in which Quincke employed it died; and in case 9 (and perhaps case 3) the transfusion was the cause of hæmorrhages in the brain, heart, stomach, retina, &c., &c.[a] Indeed, the only case out of the ten recorded by Quincke which recovered was treated with bicarbonate of soda and gentian, and subsequently with iron, and can hardly be said to owe his recovery to the medicines he received. Gusserow[b] has found transfusion ineffective even in prolonging life; and Glynn,[c] in detailing the particulars of a case "successfully treated by immediate transfusion," records the patient's death.[d]

The treatment by phosphorus can scarcely boast of greater success. Bradbury[e] records an unsuccessful instance, Bramwell's[f] most interesting case, which did recover, grew worse (retinal hæmorrhage, vomiting, diarrhœa, fever, increase of dropsy) while taking phosphorised cod-liver oil, and in Pye Smith's case[g] the improvement was but slight and transitory. Those cases which recover, supposing them to be of the same nature as those which die, are those whose digestive functions are unimpaired. In Quincke's one successful case the appetite was "*ziemlich gut*," and in Bramwell's, although vomiting and diarrhœa had occurred at an early period, when the patient was admitted his appetite was good, and there was no thirst.

Most intimately connected with the subjects of prognosis and treatment is the question whether there is any such disease as progressive pernicious anæmia, or whether those cases which were described by Addison[h] and Wilks,[i] and to which in later times attention has been specially directed by Biermer and Gusserow, are merely what we may call ordinary anæmia, symptomatic of various conditions with which we are already well acquainted. This latter

[a] Pepper (American Medical Journal, Oct., 1875, p. 326) also has seen dangerous symptoms follow transfusion in this disease.

[b] Immermann. Loc cit. 653.

[c] Lancet, 1877. I., 454.

[d] Strümpell's case, which recovered after venesection to 120 grams, and transfusion of 300 grams, is admittedly not one of pernicious anæmia. Centralblatt, 1877. 174.

[e] Brit. Med. Jour., 1876. II. 848.

[f] Medical Times and Gazette, Sept. 22, 1877. 323.

[g] Virchow's Archiv., LXV. 511.

[h] Works (Syd. Soc. Edit.). 212.

[i] Pathological Anatomy. 2nd Edit. 636.

is the view taken by Quincke, who, from the inconstancy in the condition of the blood, and in the appearances found after death, argues that—"We have not to do here with a single diseased state, but that pernicious anæmia, like anæmia in general, is the product of the most different morbid processes, and represents, as it were, the highest development, the ultimate stage of anæmia. It may, in a certain sense, be compared with uræmia, icterus, or septicæmia, which, although offering typical forms of disease, may, nevertheless, develop out of the most different fundamental conditions.—*Loc cit.*, 807.

It appears to me, however, that an unprejudiced examination of the cases which have been published shows conclusively that in a large number of them the anæmia cannot be explained by any of the usual causes of impoverishment of the blood. It is true that many of the patients have lived in very poor circumstances, but others have never known want; the digestive troubles which would impair nutrition are always secondary to the anæmia, and are manifestly the effect, not the cause, of the latter; and the accumulation of fat observed by all writers goes far to prove that the anæmia is not due to starvation from insufficient food or imperfect digestion. Again, while some patients have suffered from wasting discharges, the greater number have never done so; and if the disease is frequent in puerperal women, on whose resources there is a large drain, it is sufficiently common in men and non-pregnant women to show that the connexion with child-bearing is not essential. The *post mortem* examination fails to reveal any of the known causes for anæmia. There is no carcinoma, no phthisis, no trace of syphilitic or malarial disease; yet, nevertheless, there must be a pathological anatomy. To speak of an essential anæmia as if the whole change resided in the blood is absurd. The blood does not make itself, it does not consume itself, and it is to the organs of its formation and consumption that we must look for the explanation of its changes.

This leads me to speak of the pathological anatomy of pernicious anæmia, on which dark subject within the last few months a little light has begun to dawn. The morbid condition which was first noticed was fatty degeneration of the heart. This was observed by Addison, and has been found very commonly by all subsequent observers; yet it is variable in degree, and is not always present. Quincke found it absent in four cases; and, while Wilks says it shows itself as a mottling of

the inner surface of the walls of the heart, Orth[a] finds the more extreme form in which the walls are degenerated in their entire thickness. In the two cases which I have myself seen, the fatty change was confined to the inner aspect of the heart. We have every reason to suppose that this fatty degeneration of the heart, as well as that which has occasionally been found in the capillaries and some of the viscera (liver and kidneys), is due to the anæmia, and has no share in causing it. Fatty heart is found in other conditions of impoverished blood, as in chlorosis,[b] and has been produced experimentally in animals made anæmic by repeated bleedings.[c] So the hæmorrhages are probably due either to embolism or to yielding of vessels whose nutrition has undergone fatty or other change in consequence of malnutrition. The spleen and lymphatic glands are universally admitted to be free from disease, but recently an allied organ—namely, the medulla of the bones—has been found in a remarkably altered state. This change altogether escaped the earlier observers. Immermann,[d] writing in 1875, says:—"Spleen, lymphatic glands, and bone medulla present neither hyperplasia, nor, except pallor, anything abnormal." Quincke[e] (1876) states that nothing abnormal was to be found in the medulla. Pepper,[f] however, had examined the medulla of the radius in a fatal case, and found evident hyperplasia with diminution of fat, and Scheby-Buch, in his second case, found numerous groups of lymphoid cells in the medulla of the bones. Pepper fully recognised the importance of this change—so much so, indeed, as to maintain the theory that pernicious anæmia is to ordinary pseudo-leukæmia or adenia as the medullary form of leukæmia is to the splenic or lymphatic form. Fede[g] also found in a somewhat doubtful case, in which the spleen was much enlarged, swellings on the heads of the ribs, with hyperplasia of the medulla, which contained many polynucleated cells and blood-corpuscle holding elements. But it is Cohnheim[h] who has been the first to give a tolerably

[a] Compendium d. pathologisch-anatomischen Diagnostik. 115.

[b] Virchow. Ueber die Chlorose. 17.

[c] Perl. Ueber den Einfluss der Anämie auf die Ernährung des Herzmuskels. Virchow's Archiv. LIX., 39.

[d] Loc. cit. P. 631.

[e] Loc. cit. P. 802.

[f] Progressive Pernicious Anæmia, or Anæmatosis. American Journal of Medical Sciences. October, 1875. P. 313.

[g] Centralblatt. 1875. 780.

[h] Erkrankung des Knochenmarkes bei perniciöser Anämie. Virchow's Archiv. Oct., 1876. P. 291.

detailed account of the medullary changes, and his description agrees in the main with what has been since found by Osler and Gardner[a] and myself. Cohnheim found the medulla in all the bones, long as well as spongy, of a red colour with absence of fat. The tissue consisted of—1. Colourless marrow-cells from the size of a lymph corpuscle upwards, with one or two nuclei; few giant poly-nucleated cells, and still fewer blood corpuscle-holding cells; 2. Coloured cells; *a.* Ordinary blood corpuscle; *b.* Spherical non-nucleated bodies varying in size from that of an ordinary red corpuscle to double the size of a white corpuscle; *c.* Nucleated spherical or oval cells of variable size, and of homogeneous structure; the nuclei, also coloured, were round or oval, the former granular, the latter homogeneous. Each cell contained one or two nuclei whose size bore no relation to that of the cell in which it lay. Similar cells were found in the liver and spleen, and (*post mortem*) in the blood. Osler and Gardner examined the fibula, as well as the spongy bones (sternum, vertebræ, ribs). It is unnecessary to describe what they found, as their description tallies almost exactly with that of Cohnheim. I have fully described above the appearances which were found in my case. So far as regards the colourless cells and the non-nucleated coloured elements, my observations agree with those of Cohnheim, except that the large non-nucleated bodies in my case were more frequently oval than spherical. My nucleated red cells were distinctly of two kinds—one had coloured nuclei, and agreed with those described by Cohnheim; the nuclei in the others were uncoloured, and the whole element agreed pretty closely with the transitional forms between red and white corpuscles which were described some years ago by Neumann[b] and Bizzozero[c] as normal constituents of the red marrow, and which the first-named author found greatly increased in cases of those chronic diseases which cause general marasmus. Neumann and Bizzozero supposed that colourless lymph corpuscles become coloured blood discs by the formation of hæmoglobin in the protoplasm of the cell, the change beginning at the peripheral part, while the nucleus disappears by undergoing disintegration into granules. But in many of the cells found in my preparations it was impossible to avoid the conclusion that the nucleus with its surrounding uncoloured protoplasm was either entering or leaving the coloured

[a] Ueber die Beschaffenheit des Blutes und Knochenmarkes in der progressiven perniciosen Anämie. Centralblatt, 1877. 258.

[b] Henle und Meissner. Jahresbericht, 1868. 13.

[c] Henle und Meissner. Jahresbericht, 1869. 13.

portion of the cell. Bizzozero seems to have noticed somewhat similar forms, but does not decide whether they are due to *post mortem* change, or whether they represent a method of getting rid of the nucleus by extrusion. It occurred to me that the plasticity of the red elements observed in my case, which allowed these bodies, both in the blood and medulla, to take the peculiar forms which have been described, might also allow the small colourless cells to be pressed into and invaginated in their substance, as Steudener[a] has described in the case of the cells of cancer. I cannot suppose that the white corpuscles were taken up by the red by virtue of any active movements of the latter, as in the blood examined during life no amœboid movements were seen in the variously shaped red corpuscles, although the white cells were in lively motion. It may be added that the cells in question were larger and far more numerous than in the normal medulla even of young bones.

The blood corpuscle-holding cells appear to have been more numerous in my case than in any other recorded. Cohnheim found them scantily, Osler and Gardner found them abundant only in the vertebræ, while they were absent from the fibula and clavicle. In all my preparations they were very numerous. Neumann considers these cells as pathological, since he has met with them only in cases of typhus, but Bizzozero, while admitting their great frequency in this disease, states that he has found them when death has taken place from other causes, and also in the medulla of healthy animals (dogs). It is in typhus, too, that these cells are found in great abundance in the spleen.[b] There can be little doubt that the included corpuscles, which are often reduced to little grains of hæmoglobin, are undergoing destruction, and the number of blood corpuscle-holding cells may consequently be taken as a measure of the rapidity with which this disintegrating process is taking place.

The crystals noticed in the medulla are found in the marrow, spleen, and some other parts in cases of leukæmia, and in healthy marrow some time after death. Krause[c] describes them as double pyramids, whose angles are 18° and 162°, having a feeble lustre, being singly refracting, soluble in water, very flexible, and readily breaking into fragments. Nothing certain is known as to their composition. Krause supposes them to be composed of a mucinous substance in a solid form.

[a] Archiv. f. mikroskopische Anatomie IV. 188. Taf. XIV.
[b] Orth. Compendium. 178.
[c] Allgemeine Anatomie. 70.

The appearances found in the kidneys are of great interest both pathologically and physiologically. There can be no doubt that the granular pigment contained in the epithelium was undergoing elimination, and equally little that the high colour which the urine presented during life was due to this pigment, while the distinct iron reaction which was obtained showed conclusively that the pigment was derived from the blood. We can thus, as it were, see the corpuscles undergoing destruction in the medulla of the bones, and the products of their destruction being cast out of the body through the kidneys. It is a matter of the greatest regret to me that the urine was not examined for iron; and one of the main objects I have had in the publication of this case has been to direct the attention of others to this as well as to the other lacunæ in my observations, in order that these may be the sooner filled up.

The strict limitation of the pigment to the epithelium of the convoluted tubes speaks strongly in favour of Bowman's theory of the secretion of urine. We have in fact here performed by nature the very same experiment as that made by Heidenhain[a] with indigo carmine, and with the same result, the observations in each case showing that the constituents of the urine are, at all events as regards some of them, eliminated through the epithelium of the convoluted tubes, and not through the malpighian tufts, as maintained by Ludwig.

Quincke[b] has found in some of his cases in the liver (outer parts of lobules), pancreas, and kidneys, similar black iron holding pigment to that which occurred in my patient, but the distribution in the kidney, although similar, was not so regular and universal as in the instance now recorded. Besides, in Quincke's cases there was the suspicion that the iron was in great part, at least, derived from medicine. I regret that I was not acquainted with Quincke's observations when I made my autopsy. The liver and pancreas were unstained in my case, and were consequently not tested for iron. In Quincke's cases the black staining occurred where the viscera were in contact with the intestine. In the kidneys of my patient no such localisation of colour existed. Quincke found very large quantities of iron in the liver and kidneys of some of his cases. In one liver 2·1, in another 0·6 per cent. of the dried organ was found to consist of metallic iron, and from the dried kidney 0·32

[a] Archiv f. mik. Anat. X., 1.

[b] Loc. cit. 817 (Auch in der Niere fanden sich feinkörnige eisenhaltige Massen (Eiweisskörper) in den Epithelien gewisser Gruppen und Züge von gewundenen Harnkanälchen, während die Glomeruli frei waren).

per cent. of iron was obtained. In 50 grams of undried kidney I found 0·0176 of metallic iron.[a]

With regard to the blood itself, my observations add nothing new. The same fewness of red corpuscles and irregularity in their shape and size, as has been observed so often, were noticed. Like Osler and Gardner I failed to detect nucleated coloured cells. Eichhorst[b] has recently stated that in all cases of pernicious anæmia the diagnosis may be made by the presence in the blood of a large number of very small red corpuscles; but such a condition of microcythæmia has been observed in other diseases, and in two fatal cases of pernicious anæmia recorded by Grainger Stewart[c] this condition was absent, while Lepine has found the corpuscles remarkably large. I should myself be inclined to place more weight on the great variety in shape of the corpuscles, as observed by Osler, Bradbury, Quincke, as well as by myself, than on the presence of the small bodies of Eichhorst. I did not see the separation of the colouring matter from the rest of the corpuscles described by Mackern and Davy.[d] The zooid and œcoid view of the structure of the corpuscle is a rather uncertain foundation on which to build a theory, and it must not be forgotten that, as pointed out by Ranvier,[e] appearances resembling the withdrawal of the colouring matter from portions of the corpuscle are often due merely to irregularities on the surface of the latter.

Finally, this case, although more calculated to raise questions than to answer inquiries, would seem to show that in pernicious anæmia a definite, but still far from understood, lesion exists in the bone medulla; that there probably an imperfect formation, and almost certainly an increased destruction of the red corpuscles, takes place, and that the products of this destruction, at all events in great part, pass into the urine.

Cases of anæmia must be divided according as this lesion is present or absent—and while those in which it is absent may find their explanation in what we may call the ordinary causes of impoverishment of the blood, the others must be placed in the category of diseases of the blood-forming organs, of which, up to the present, leukæmia represents the best-established instance.

[a] I am much indebted to Prof. Reynolds, who not only allowed this analysis to be made in his laboratory, but performed the greater part of it himself.

[b] Ueber die Diagnose der progressiven perniciösen Anämie. Centralblatt. 1876. 465.

[c] Brit. Med. Jour. 1876. II., 40.

[d] Lancet. May 5th, 1877. 642.

[e] Traité technique. P. 193.

Art. XVI.—*A Freezing Microtome for Use with Ether Spray.*

By Roger Bickerstaffe, M.D., M.Ch., Q.U., Irel.

I am induced, by the success of my experiments with the following instrument, to bring it under the notice of the readers of *The Dublin Journal of Medical Science*, as being the most convenient freezing microtome with which I am, as yet, acquainted. I say most convenient advisedly, because it is not *better* than existing models—indeed, it is inferior to Rutherford's in some respects; but it is one that can be used when time is limited, provided the area of the section required is not large. The method of freezing animal substances for section by means of ether spray was, I believe, first described by Mr. C. Coppinger, in *The Lancet*, 1876, Vol. I., p. 277; it struck me as being a very satisfactory way of producing the necessary degree of cold; but I desired to combine the advantage of a microtome with the ether-spray process, and, I believe, I have, in the following instrument, succeeded tolerably well.

The microtome to which I refer is made of brass, and consists of a thin plate on which the section cutter glides; its dimensions are 2 inches long by $\frac{3}{4}$-inch broad, and $\frac{1}{16}$-inch thick; in its centre is fixed a tube, forming the well, $\frac{3}{8}$-inch, internal diameter, and having walls $\frac{1}{32}$-inch thick; the depth of the well is $1\frac{1}{4}$-inches. The thinness of all the metal is essential to avoid loss, by conduction, of time, ether, and money. These are the chief points about the instrument which require notice, the remainder is after the Ranvier pattern—consisting of a movable plug and a screw for raising and lowering it in the well.

The mode of use is as follows:—The machine is fixed to a wooden table by a wooden or vulcanite clamp; the well is filled with the liquid in which the tissue is to be frozen (I have used diluted glycerine and it answers admirably), and a spray of ether is directed against the exterior of the tube forming the well. As soon as a white coating is deposited on the tube the spray may be stopped, and the liquid in the well watched; when an advancing film of ice is perceived—which will be in less than a minute—the piece of tissue may be introduced by means of a needle or pair of fine forceps; a minute and a-half or two minutes may then be given for the whole to become thoroughly frozen, when sections may be made, as with Rutherford's machine. This mode of proceeding has three advantages and one disadvantage, which is, no doubt, a great

one. Its disadvantage is that the area of section must be small. Its advantages are:—1st. Celerity, three minutes being amply sufficient to render a tissue ready for the section-knife from the time when the ether is first directed on the instrument. 2. Availability in places where ice cannot readily be procured, as in the country. 3rd. Economy. Methylated ether costs about 2s. per lb., and by the expenditure of 2 ozs. fully a dozen sections of frozen tissue can be made; while if ice is used in Rutherford's machine, 2 or 3 lbs. go a very short way, and ice costs here 2d. per lb. I only draw attention to this microtome to enable some of your more busy readers to make a section that might otherwise have been left unmade for lack of time; I know it has saved me many a half-hour since I used it. There is nothing new in it, as every one will see; the microtome is essentially a small-welled Ranvier, made of *very thin* metal. The process of freezing by the spray is, as I have previously stated, Mr. Coppinger's, and I must acknowledge my gratitude to him for so valuable a discovery for economising time.

I find that diluted glycerine fulfils the same indication as mucilage, recommended by Urban Pritchard, in that it does not become crystalline, and it does not take so long a time to freeze as the mucilage does. In conclusion, I may say that any good brass-finisher will make the instrument at a cost of about 5s. My own cost me 1s. in having a fine screw cut, which was exceedingly well done by an optician in this town (Darlington), the rest I made myself of the dimensions above stated; the whole machine, plug and all, weighs under half an ounce. It having acted so satisfactorily with me, is the only reason why I have ventured to bring it under notice.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Clinical Lectures on Diseases of the Liver, &c. By CHARLES MURCHISON, M.D., LL.D., F.R.S. Second Edition. London: Longmans, Green, & Co. 1877. 8vo, pp. 644.

IT is with much pleasure we hail the appearance of a new and enlarged edition of this valuable work.

It is satisfactory to know that the favourable opinions of the first edition, expressed in this and other journals, have been ratified by the voice of the profession, and, still more, to find that the author has steadily continued to prosecute his investigations, and has availed himself of his increased opportunities of observation, and of the enlarged experience afforded by an increasing reputation, with the result of producing a work which leaves nothing to be desired; and which will, assuredly, be long referred to by students and practitioners as a classic on the subject of diseases and derangements of the liver.

Having collated the two editions, we can bear testimony to the care with which the former has been revised, and to the value of the new matter introduced in the body of the work, by which—and by the incorporation of the author's admirable Croonian lectures on the "Functional Derangements of the Liver"—the number of lectures has been increased from 12 to 16, and the bulk of the volume nearly doubled.

Thus an additional lecture on enlargements of the liver has been rendered necessary by the introduction of two new subjects, to which we shall briefly refer.

The first is Interstitial Hepatitis, which is ably discussed in the following passage:—

"VI. ENLARGEMENT OF LIVER FROM INTERSTITIAL HEPATITIS.

"This form of enlargement of the liver is a common sequel of chronic hyperæmia. Its clinical characters are these:—

"1. The enlargement is uniform in every direction, and may be much greater than in simple congestion. The liver may reach up to the nipple

and down to the navel, or even lower, but its lower margin is often obscured by tympanites or ascites.

"2. Its surface is smooth, or slightly uneven, dense and resisting, and more or less tender. Occasionally there is acute tenderness from intercurrent attacks of peri-hepatitis.

"3. The symptoms in the first instance are the same as those of active hyperæmia, which I have already described to you, so that sometimes it may be difficult to say whether there is congestion only, or congestion plus interstitial hepatitis.

"4. But when the disease is more pronounced, its prominent features are sallowness or slight jaundice, venous stigmata on the cheeks, nausea and retching, especially on first rising in the morning, loathing of solid food, particularly in the early part of the day, diarrhœa alternating with constipation, hæmorrhoids, scanty dark urine loaded with lithates, and in some cases temporary albuminuria, depression of spirits, sensations of sinking and a craving for stimulants. Occasionally there is a slight pyrexia.

"5. In a still more advanced stage there will be the various symptoms of portal obstruction, which I shall have to describe to you in detail when we come, in a future lecture, to consider cirrhosis under the head of contractions of the liver. The enlargement, in fact, which I have now described is the disease known as cirrhosis, although when the symptoms of this disease are well pronounced the liver is more commonly contracted. In opposition to the opinion of the late Dr. Todd,[a] several observers, such as Saunders, Bright,[b] Budd, Frerichs,[c] have expressed the opinion that in cirrhosis the contraction of the liver is occasionally preceded by a stage of enlargement, but as far as can be judged from medical writings such an enlargement is believed to be exceptional. Gee has recorded two cases of 'cirrhotic enlargement of the liver,' in which the organ weighed 100½ and 104 ounces respectively.[d] Habershon has met with an inflammatory induration of the liver, in which the organ becomes greatly enlarged;[e] and Duckworth has described a 'hypertrophic cirrhosis.'[f] From my own experience I have been led to believe that in a considerable proportion of cases of cirrhosis, the liver is still much enlarged (very often from the presence in the organ of a large quantity of fat) after ascites and other symptoms of portal obstruction have set in, and that patients often die in this condition with jaundice, hæmorrhages, and symptoms of blood-poisoning (the prognosis being no better than if the

[a] Clin. Lect. on Urinary Diseases and Dropsies. 1857. P. 113.
[b] Guy's Hosp. Rep., 1st ser. Vol. I., p. 612.
[c] Dis. of Liver, Syd. Soc. Transl. Vol. II., pp. 35, 37, 53.
[d] St. Barth. Hosp. Rep., 1869. Vol. V., p. 108.
[e] Lettsomian Lectures. 1872. P. 56.
[f] St. Barth. Hosp. Rep. Vol. X.

liver were contracted). In this opinion I am confirmed by the independent observations of Professor Leudet, of Rouen,[a] who observes: 'On est arrivé par l'anatomie pathologique à reconnaître que l'augmentation du volume de la glande n'était pas toujours l'indice d'une lésion récente du foie, d'un processus aigu encore curable.' This is the reason why I have brought the disease under your notice on the present occasion, but I shall have occasion to return to it in a future lecture. It is a matter for investigation whether, if the patient lived long enough, the enlargement in all these cases would be followed by marked cirrhotic contraction. M. Ollivier, in fact, is of opinion that cirrhotic enlargement is a distinct affection from cirrhotic contraction.[b] There can be no doubt, however, that it occurs under the same conditions and gives rise to the same symptoms. It seems probable, therefore, that the same causes sometimes lead to contraction, and sometimes to enlargement of the liver."

It is a curious fact that Dr. Todd furnished, in his own person, a refutation of his doctrine. We have the authority of Dr. Stokes for stating that in an early stage of his illness the liver was ascertained to be enormously enlarged, while, on examination after death, it presented a marked example of cirrhotic contraction.

We have witnessed this transition from inflammatory enlargement to contraction in several and similar cases; the interval between the primary illness and the fatal termination varying from a few months to three years—hæmorrhages and other symptoms of obstruction of the portal circulation occurring at various periods. Thus, in one instance, copious hæmatemesis occurred at the commencement, more than two years before death, being followed by a long interval of apparent health; while, in the case of Dr. Todd, it was the final symptom, ushering in the fatal termination.

In the treatment of congestion, including interstitial hepatitis, two additional remedies are mentioned by Dr. Murchison. Of one of these he remarks that, "it is a notable fact that since ipecacuanha has come into general use in the treatment of dysentery in India, abscess of the liver has become much less frequent."

The other is chloride of ammonium, long used in this country in hepatic affections, and which we regard as especially worthy of confidence in the treatment of the early stage of interstitial hepatitis.

We observe that an important omission in the former edition is supplied in the section on enlargement by obstruction of the

[a] Clin. Méd., Paris, 1874, p. 541.
[b] L'Union Méd., Sept., 1871, pp. 361, 400, 449.

common bile duct by calculi, tumours, &c We allude to the description (p. 160) of the contraction caused by consequent atrophy of the secretion cells.

The author discusses at length the vexed question of the causal connexion between dysentery and hepatic abscess, and adopts the conclusion that *tropical* abscess of the liver is independent of dysentery, and should, therefore, be distinguished from the *pyæmic* abscess, which is the common form in this country. He is a strenuous advocate for the timely opening of tropical abscess, and gives elaborate rules for the performance of the operation, for which we must refer to the work itself.

The sixth lecture is devoted to the subject of cancer of the liver, its symptomatology, differential diagnosis, and treatment, which he rightly observes must be entirely palliative.

We observe that he mentions, for the first time, "the presence of a small mass of cancerous induration in the abdominal wall around the navel," as assisting the diagnosis in many cases. This sign was observed at an early stage of the disease in the person of a gentleman who died recently in this city.

The seventh is an additional lecture "on diseases which occasionally lead to enlargement of the liver, but which are of comparatively rare occurrence."

Of one of these, "spindle-cell sarcoma," a most interesting case is minutely detailed, the subject of which had undergone extirpation of the eyeball, for the same disease, more than nine years previously.

The details are too long for quotation, but we extract the following important remarks on the differential diagnosis of the disease—

"The following case is an example of a form of enlargement of the liver hitherto (1873[a]) undescribed. It illustrates the importance, on clinical grounds, of distinguishing the anatomical characters of the different lesions still too commonly grouped under the common designation of 'cancer.'

"Until within the last few years the disease in this case would, from a structural point of view, have been regarded as a variety of cancer. Structurally, it is now acknowledged by pathologists to be distinct from cancer, while it will be seen that the clinical history of the patient was very different from that of true cancer of the liver. 1. There was no evidence of the so-called cancerous cachexia. The patient had never the appearance of a man suffering from malignant disease; four months

[a] The case was communicated to the Pathological Society, Jan. 21, 1873.

before his death his weight was exactly the same as it had been twelve months before, although all this time the disease in the liver had been progressing; and he continued to go about and follow his employment until within two or three weeks of his death, the cause of which was obscure. 2. Considering the size of the tumour, there was much less pain than might have been expected on the supposition that the disease was true cancer. The severe, but rare and transient, attacks of pain in the right side were more like what might have been expected to result from the calculus found after death in the right kidney, than from the disease in the liver. For a time a burning pain was complained of in the liver, but for many months before death this had quite ceased, and latterly the chief complaint was a feeling of tightness due to the size of the tumour. 3. There was neither jaundice nor ascites. 4. The similarity in structure between the tumour of the eyeball and that of the liver pointed to a constitutional origin; but the interval between the primary and secondary lesion was much greater than in true cancer, unless we are to suppose, what would have been equally incompatible with cancer, that the disease had been going on in the liver for eight or nine years, without giving rise to symptoms, until it produced an appreciable tumour. 5. Primary cancer of the liver is not common at so early an age as that of my patient. It remains to be seen whether these clinical characters will hold good in other cases of tumour of the liver presenting the same anatomical structure."

Want of space prevents our noticing in detail the lectures on acute and chronic atrophy of the liver, on jaundice, on ascites, and on gall-stones, their consequences, and symptoms.

We are also compelled to pass by the Croonian lectures on functional derangements of the liver, with the remark that, in the first we have a masterly exposition of its healthy functions, while in the others, the interdependence and mutual influence of its derangements, with those of other functions, is illustrated in a manner so comprehensive and complete as to justify the author's modest anticipation, that "the day will come when, with a more perfect knowledge than we now possess of the healthy functions, and of the signs of functional derangement of the liver, we shall be enabled to prevent, or to arrest at their commencement, many of the most serious ailments to which mankind are liable, and thereby to add another chapter to the volume of preventive medicine."

We cannot too strongly recommend the careful study of this valuable work. It is a model of observation and research, of scientific pathology, and sound clinical teaching, and is in every respect worthy of the high reputation of the author.

The Practitioner's Handbook of Treatment; or, the Principles of Therapeutics. By T. MILNER FOTHERGILL, M.D., M.R.C.P., Assistant-Physician to the Victoria Park Hospital for Diseases of the Chest, and to the West London Hospital. London: Macmillan & Co. 1876. Pp. 571.

WE regret that we have been prevented from expressing before this the favourable opinion we have formed of this work. It is a successful attempt of an original character to explain the *rationale* of our therapeutic measures. And it gives, at the same time, clear and enlightened indications for the application of such measures in the treatment and prevention of disease.

Dr. Fothergill is well known as a fertile contributor to medical literature. He has, in a marked degree, the valuable faculty of utilising the results of the original researches and thoughts of scientific workers and thinkers. When combined with this faculty we find an author possessed of a large amount of self-acquired information and shrewdness, any work of his which professedly tends to render the treatment of disease more scientific and exact, deserves our best attention.

The aim of this Handbook is "to supply a digest of the general principles of therapeutics, to arrange well-known facts of practice together with the explanations furnished by pathological research and physiological inquiry in such a way and form that the treatment of each individual case shall become a fairly intelligent and rational procedure rather than a groping empirical guess."

The Handbook is divided into two parts. The first part consists of an inculcation of general principles "either derived from the laboriously accumulated stores of empiricism, or the direct outcome of physiological research." In this division are contained chapters on assimilation, excretion, fever, inflammation, blood-poisons, acute and chronic disease, the diatheses and cachexiæ, &c., &c. The second portion embraces the application of the principles previously expounded in the consideration of the various maladies of the different systems of the body and their treatment. This well-conceived design is ably carried out, and fitly completed by chapters on Hygiene and Diet in Health and Disease, while the concluding chapter, a most useful one, and chiefly intended for junior readers, is entitled "The Medical Man at the Bedside." Such is a brief *précis* of a work we have read, and consulted from time to time, with instruction and profit. From the number and variety

of subjects discussed it is difficult to select any special topics for particular consideration or criticism. Our readers will perhaps form a better opinion for themselves as to the scope and style of the work by a perusal of a few of the many passages we have marked as worthy of note:—

"*Anæmia.*—This is a condition of general diminution of the bulk of blood. It is a condition which occurs very commonly in connection with blood-poisons. Consequently, as has been pointed out before, it is found along with syphilis, gout, lead-poisoning, malarial infection, &c. It may arise from imperfect supplies of food, from starvation, or it may take its origin in mal-assimilation, in impaired digestion. At other times it is due to drains upon the system, as lactation, menorrhagia, or leucorrhœa, chronic diarrhœa, hæmorrhoids, or the growth of a malignant tumour, robbing the system to promote its own increase. In the first cases there is a poison existing which either breaks down the blood-corpuscles, or hinders their formation. In the second series the blood is not sufficiently fed by the nutritive processes. In the third there is a drain upon the system which is impoverishing the blood. A proper recognition of the causal relationships of anæmia is of the utmost value in giving the right direction to the remedial measures. It is of little use to give hæmatics to a menorrhagic woman, whose system is simply drained every three or four weeks, if at the same time measures are not taken to check the drain. Very often, indeed, it is a more successful line of practice to stop the blood-loss, and so permit of blood-accumulation, than merely to build up so much blood to be periodically lost. The one substitutes a steady progress for the violent oscillations of rapid blood-formation, alternating with severe losses, which is induced by the other. Especially is such plan desirable in stout women given to rapid blood-formation.

"Anæmic persons are not necessarily spare. Chlorotic girls often become very fat. At the same time there is much lassitude, drowsiness, muscular inertia, defective secretion, and general loss of tone. Every organ feels the lack of arterial blood; especially does the brain feel it. With the large amount of blood normally in the encephalon and its rapid flow, a condition of anæmia, with defective circulatory force, is soon felt by the contents of the cranium. The sense of energy, so delightful to all, is gone, and langour takes its place. The person is drowsy when up, and feels as if he (or rather she) never could sleep enough. At times, however, the rest is broken from the blood flowing more freely into the brain when the head is laid upon the pillow. Consequently it is no uncommon thing for such patients to sleep almost propped up in bed. There is a great tendency to neuralgia, which may be cranial, facial, or intercostal. 'Pain is the prayer of a nerve for healthy blood,' wrote Romberg; and very commonly it is so. When the pain is intercostal it

is usually found in the sixth or seventh intercostal nerve of the left side in women. When so found it is generally associated with suckling, or with discharges from the genitals, and usually leucorrhœa. Where there is pelvic irritation it would seem that the nerve-currents coming up the splanchnics especially affect the spinal nerves, springing off at the point of entry of the greater splanchnic into the dorsal ganglia. From each dorsal ganglion pass fibres to the intercostal nerve, and in some occult way the sixth and seventh intercostal nerves become the subjects of neuralgia in uterine irritation. Such neuralgia rarely yields to general treatment, unless the reproductive system be also attended to, and the drain, whether leucorrhœa or suckling, be arrested. Neuralgia, or, in others, pain in the vertex of the head, are the scourges of anæmic women. . . .

"Breathlessness upon exertion is a very common phenomenon in anæmia. It is not due to debility in the diaphragm, the respiratory muscles, nor yet in the right ventricle. These different factors may have some influence, but they do not form the essential matter. The real source is the diminished amount of red corpuscles, and the impaired chemical interchanges resulting therefrom. The supply of oxygen is too imperfect for exertion and effort; and if these are attempted breathlessness follows. Upon this condition of diminution of blood-corpuscles and defective oxygenation depends also the fatness so often found in the anæmic, and especially in the chlorotic. These pallid, pasty creatures often become very obese, becoming paler, more languid, and breathless as they wax fatter. The fact is that they grow fat from lack of blood-corpuscles to supply oxygen to burn their hydrocarbons, and the fuel becomes deposited as fat. As they recover from their anæmia, and regain the bloom of health, their stoutness diminishes, until they once more possess their pristine symmetry. Not uncommonly the colouring matter of the corpuscles, dissolved in the hydræmic blood, is deposited in the areolar tissue, as in the dark suborbital patches of anæmia, and the general staining of the skin in chlorosis; or passes away in the urine as urohæmatin."

The indications for the treatment furnished by anæmia are then given; the use of chalybeate springs being particularly noted. An important point, however, is thus alluded to:—

"At the same time it must be remembered that very commonly anæmic patients are most difficult to manage from the effects of impaired nutrition on the brain. As soon as ever the blood is at all enriched severe headaches come on and harass the patient extremely. There is often, too, such cerebral excitement that some depletory measure seems indicated, and relief is not uncommonly brought about by bleeding from the nostrils. Many writers have drawn attention to these consequences of too suddenly

filling the cerebral vessels with blood. . . . In such cases chalybeates may be combined with bromide of potassium, as they commonly are united in the treatment of melancholics.

Pot. Brom. gr. v. aut. x.
Fer. Pot. Tart. gr. v.
Inf. Quassiæ, ʒi. ter in die,

is a good combination under such circumstances. At other times these effects of debility of the nervous system—where irritability is so associated with adynamy—may be obviated by the combination of purgatives with the hæmatics or tonics. . . . Where the anæmia is associated with amenorrhœa it is very desirable that the iron and aloes be given together. Griffith's mixture with the compound decoction of aloes forms a good combination. It is however only suitable to be given before food, and it is a golden rule that iron, as a pure hæmatic, should be given after food and digested with it. Consequently iron in pill with an aloetic purgative, is here indicated. Arsenic may be conveniently added. The following form is a capital combination :—

Arsenic, gr. i.
Fer. Sulph. Exsic, ʒss.
Pulv. Pip. Nig. ʒi.
Pil. Al. et Myrrh. ʒii.
In pil. LX. div. 1 bis in die.

Each pill to be swallowed shortly after food. Half a drop of Ol. Sabinæ is an excellent addition in amenorrhœa—an addition now too rarely made."

In a chapter, in the first part, on "Growth and Decay," the subject of infant dietary is ably discussed. The importance of a sufficiency of fat in the food of children is, we are glad to see, insisted upon, especially as—

"We now know distinctly that hydrocarbons play an important part in cell-formation and in tissue-building. They are not less necessary for perfect histogenesis than they are requisite for the maintenance of the body-heat and the manifestation of energy. The aversion to fat, which is often the precursor of consumption—which leads to imperfect tissue formation, and thus to tubercle—is very often a foolish caprice and an ignorant prejudice; though doubtless at times it may arise independently of the will. If the inability to eat fat were successfully opposed, many of those dangers of imperfect cell-growth might be avoided, which afterwards cause so much consternation, and subsequent contrition. When tubercle has once established itself, then there is resort to cod-liver oil—which after all is nothing more than the most digestable of fats—to medicine, a fixed dietary, and to numerous means which would have been

much more effectual if adopted as preventive, rather than as remedial and restorative measures. Those very measures we adopt to restore tissue-growth to its pristine integrity are those which should have been used all along."

While on the subject of food we may mention that in no less than four places (pp. 108, 225, 330, and 405) does the author dwell upon the too-general misuse of beef-tea or solutions of Liebig's extract as a food:—

"Beef-tea is a useful stimulant, but it is only to a very slight extent a food. As ordinarily given, it is scarcely a food. It contains nothing out of which tissues can be built, for its products are too far advanced for histogenesis: while its oxidising power is so small as to furnish little or no force to the system. Beef-tea as a stimulant is much abused, to the detriment of sick persons."

On the other hand the position of alcohol as a food, as well as a stimulant, is strongly maintained. The directions for the medical use of alcohol, and the article on "the theory of stimulants" are admirable.

We have left ourselves but little space to speak of other parts of the book, but we cannot refrain from expressing our approval of the complete way in which the entire subject of Lithiasis is treated of in the chapter on gout and in that on the urinary system. In the latter chapter also albuminuria is very ably handled; not only as regards its diagnostic import but also its pathology and treatment, especially the all-important subject of diet in persons the subjects of renal disease. Although the object of the work is mainly therapeutical it will be seen that we have in it no mere bald recital of the recognised treatment for such-and-such a disease. Every case on the contrary is rather viewed as a member of a group, and from a physiological, clinical, and pathological standpoint. Not only are the ordinary characteristics of a disease given and its treatment described, but, what is equally important for the practitioner, the finer shades by which diatheses in their inception and in their influence on disease may be recognised, and the lines of preventive and curative treatment indicated, are faithfully sketched. Plans of treatment are given which may seem to many obvious enough when pointed out, but which are often forgotten or not thought of by the junior practitioner or the routine prescriber. The large number of useful formulæ furnished throughout the work leave little to be desired as regards their simple completeness and originality. The

great value, however, of Dr. Fothergill's teaching of therapeusis is, that no drug should be given without a distinct and clear comprehension of the nature of each agent; and he insists that treatment in every case should be based on a knowledge of the pathology and on a correct diagnosis of the affection.

No one, we think, who studies Dr. Fothergill's work can fail to become, if not a better, a more rational therapeutist. For this reason we strongly commend the Handbook to all members of the profession, particularly to those who have just crossed its threshold. They especially feel the difficulty of using the remedial agents at their command to the best advantage, and the need of such a guide as this work furnishes.

Fownes' Manual of Chemistry. Vol. I.—Physical and Inorganic Chemistry. 8vo. 551 pp. *Vol. II.—Chemistry of Carbon Compounds, or Organic Chemistry.* 8vo. 648 pp. Twelfth Edition, Revised and Corrected. By Henry Watts, B.A.; F.R.S. London: Churchill. 1877.

The twelfth edition of Fownes' well-known Manual of Chemistry will be welcomed by many a teacher and student of that science. The work has always enjoyed and merited great popularity amongst medical students, and a copy of one or other of its many editions is pretty certain to be found in every medical man's library. The present edition has been prepared by Mr. Watts, the editor of the well-known Dictionary of Chemistry, which bears his name. We may, therefore, feel confident that the work is as free from errors as it is possible any such book can be. The work is, for the first time, divided into two volumes, and that which now lies before us is devoted altogether to chemical physics and inorganic chemistry. The arrangement of the subject matter is not very different from that observed in the eleventh edition, the only change of importance being the discussion of the laws of combination immediately after a description of the compounds of oxygen. We are glad to observe that the temperatures are expressed according to the centigrade scale, and that the decimal system of weights and measures is adopted. The nomenclature differs somewhat slightly from that used in the last edition; sodium hydrate is now termed sodium hydroxide, and thus the radicle O H is an admitted entity.

We notice that gold is placed among the monad metals; but we think it would be better to give it position amongst the trivalent

elements, for though it forms a series of compounds in which it acts like a monad, yet in most of its combinations it is triad. It is a safe rule to determine the quantivalency of an element by the number of atoms of a well-defined monad with which it combines; for monatomic metals may unite with several atoms of dyads. Thus potassium, which is incontrovertibly univalent, forms such compounds as K_2O_4. This is owing to the circumstance that the atoms of dyads can satisfy their mutual affinities; as, for example, when two atoms of potassium combine with four of oxygen, thus: K—O—O—O—O—K. We cannot, however, have a compound of one atom of potassium with two of chlorine, whereas there is a very stable chloride of gold with the formula $Au\ Cl_3$.

The descriptions of the elementary bodies, and their more important combinations with each other, are clear and concise. The rarer elements are treated of at greater length than in the former editions; and, altogether, the present volume may be regarded as giving a very fair and, for most purposes, sufficiently extended account of the present condition of chemical philosophy and inorganic chemistry.

The account of organic chemistry given in this edition of Fownes' chemistry is much more extensive than is to be found in any of the previous issues of the work. This is accounted for by the circumstances that a whole volume is devoted to the subject, whereas in the former edition, inorganic and organic chemistry were dealt with in but a single volume. More room has been secured for ample treatment of the more definite organic bodies, by excluding descriptions of the animal and vegetable tissues and fluids, and some of the chemical phenomena of life. These subjects, are, indeed, sufficiently important and extensive to entitle them to be considered in distinct works.

We have but little fault to find with the manner in which the subject matter of this volume is treated. The nomenclature is of the most modern pattern; and there are not many omissions of any consequence. We did, however, expect that the pyrrol derivatives, discovered last year by C. A. Bell, would have been referred to; and it is odd that the new anæsthetic agent, amyl nitrite, is not even named. It is incorrect to refer the discovery of the selenocyanides to Crookes; they were, in reality, first investigated by Berzelius. The alphabetical arrangement of the index is faulty; thus amyl cyanide comes before amylamine, and amyl-methelbenzene before amyl-glycerin.

The names of authors are conspicuous by their absence; in the case of those whose recent discoveries are of importance, and are embodied in the work, it would have been desirable, for many obvious reasons, to refer to them by name.

With the foregoing and a few other exceptions, Fownes' chemistry may be, with justice, described as one of best written and most accurate works of the kind in this or any other language.

A Systematic Handbook of Volumetric Analysis. By Francis Sutton, F.C.S. Third Edition. London: Churchill. 1876. 8vo. 430 pp.

Mr. Sutton's book on Volumetrical Analysis is the only work of the kind published in the English language, if we except the small book written by Mr. Scott, formerly of the Royal Dublin Society, and which is now out of print. To the pure chemist Mr. Sutton's work is almost invaluable, and to those who only occasionally examine articles chemically, it is, if possible, even more useful. Medical men who make analyses of urine for clinical or physiological purposes, will find full information and instructions as to the use of apparatus and application of test-solutions in this excellent book. We have studied it very carefully, and are able, therefore, to state that there is little, if anything, to be found fault with in it. This is somewhat unusual in a work of the kind. In the determination of the amount of soluble phosphate of calcium in superphosphates he recommends that 20 grammes of the substance containing it should be dissolved in water, and the bulk made up to a litre. Of this solution an aliquot portion is to be taken for the estimation of the phosphoric acid. The insoluble matter in a superphosphate usually amounts to from 40 to 50 per cent., and it displaces usually about 4 cubic centimetres of the solution, reducing the litre to 996 c.c.; therefore, 50 c.c. of such a solution would not be really the aliquot portion of the actual amount of dissolved matter. We avoid this error by washing the soluble portion of the superphosphate through a filter, and then making up the solution to 1 litre with distilled water.

The description of Frankland and Armstrong's method of water analysis is very comprehensive; and M'Leod's new modification of Frankland's gas apparatus is explained admirably by both letterpress and illustration.

In conclusion, we cordially recommend this work to sanitarians, analysts, and, in a word, all who require a knowledge of this, the most elegant and rapid, method of quantitative analysis.

On Idiocy and Imbecility. By W. W. IRELAND, M.D., Edin.; Medical Superintendent of the Scottish National Institution for the Education of Imbecile Children at Larbert, Stirlingshire. London: J. & A. Churchill, New Burlington-street. 1877. Pp. 413.

DR. IRELAND, in the present work, has collated, in systematic form, his own previous and already well-known writings, with numerous and extensive additions, together with the results of his study of the labours of others in the same field—the whole forming one compact and handsome volume. In the first chapter the author—than whom, from his large experience, there is none, perhaps, better fitted to speak authoritatively on the subject—thus defines idiocy:—"Idiocy is mental deficiency or extreme stupidity depending on malnutrition or disease of the nervous centres, occurring either before birth, or before the evolution of the mental faculties in childhood." The second chapter is devoted to the statistics of idiocy drawn from the returns, not only of the United Kingdom, but also from several countries on the Continent, and the United States. In England and Wales there were, in 1871, 29,452 idiots and imbeciles, being in the ratio of 1 to 771 of the entire population. This is, however, admitted to be 25 per cent. below the actual number, parents being extremely reticent in returning their children as idiots and imbeciles. The question of etiology is dealt with in Chapter III., which contains a large amount of interesting matter. Dr. Ireland enumerates heredity, consanguineous marriages, scrofula, drunkenness in the parents, fright, or other influences acting on the mother during pregnancy as amongst the best known causes—two or more of these, however, often working together to produce the result. The author's well-known classification of idiots, based on the stand-point of pathology, is given at length in Chapter IV., "Genetous" being here substituted for his former "Congenital Idiocy." He makes the following division:—1. Genetous Idiocy. 2. Microcephalic Idiocy. 3. Eclampsic Idiocy. 4. Epileptic Idiocy. 5. Hydrocephalic Idiocy. 6. Paralytic Idiocy. 7. Cretinism.

8. Traumatic Idiocy. 9. Inflammatory Idiocy. 10. Idiocy by Deprivation. From the fifth to the fourteenth chapters is occupied with the descriptions of these various forms of idiocy, their nature and symptoms, varieties, differential diagnosis, prognosis, and pathological anatomy; and numerous and interesting examples, with illustrations, are given of each. Chapter XV. treats of the growth of idiots, while Chapter XVI. is devoted to the consideration of insanity in children, and insane idiots and imbeciles. Perhaps the most important chapter in the book, at any rate for those concerned in the care and treatment of idiots and imbeciles, is the eighteenth, on the "Best Methods of Educating Idiots and Imbeciles;" here the author clearly tells what his own experience has taught him, and we can confidently recommend its perusal, not only to medical men, but to all who, as above mentioned, may be concerned in the care of idiots and imbeciles. Chapter XIX. deals with the laws relating to idiots; and the volume concludes with a chapter on "Wolf-boys," in which many curious and interesting facts regarding the histories of children, alleged to have been reared by wild animals, are detailed. The work is embellished with several well-executed lithographic plates representing the brain, head, and skull of a "Kalmuc idiot," and the same parts from a case of microcephalic idiocy, together with numerous woodcuts, from photographs scattered through its pages. Appended are a series of genealogical tables, showing the hereditary transmission of neurotic affections from one common ancestor. We may safely predict for this book a high reputation, and we believe that it will ultimately come to take the position of a standard work on the subject of which it treats.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

SESSION 1876–77.

President—Richard Ross, M.D.
Honorary Secretary—William Whitla, M.D.

Dr. Ross, President, in the Chair.

Dr. Fagan read a paper, entitled, "Observations on Excision of the Knee-joint; with Reports of Three Successful Cases." [It will be found at p. 393.]

Dr. James Moore had seen this operation performed by Sir Wm. Fergusson, Syme, Liston, and in the Belfast Royal Hospital; but the cases were principally adults. As a rule, for this operation you have scrofulous subjects to deal with; but, in children, this rule does not hold good for joint diseases generally. He believed, in properly selected cases, it is a good operation, but, on the whole, he does not recommend it.

Dr. Dempsey, while speaking favourably of the operation, and thinking well of these particular cases, said he believed that the great care and trouble in looking after and attending to the patients, was an objection to the operation.

Dr. John Moore said that it would be an advantage, in judging of the value of an operation, to see the cases at a later period, as the growth of the limb cannot be judged fairly of for some time. He said he was struck by the number of maimed children turned out of school. After a careful reflection on the numerous cases of other surgeons, which he had watched, he came to the conclusion that it is only in children and young adults that the operation is at all admissible. On the whole he did not look upon the operation with a favourable eye. He did not agree with

Sir William Fergusson, that six limbs were worth one life. He preferred life to limbs, and thought that with their admirable anatomical mechanician's (Adam Sloan's) assistance, they could turn out better cases by amputation than by excision. He considered that we were on the border-land of a change in knee-joint treatment, and that *incision* would take the place of *excision*. In many cases, he thought, a good free incision productive of the highest good; it relieved tension and evacuated matter, the presence of which was fatal to union or repair.

Dr. F. Beck had not been struck favourably with the operation hitherto, but would be inclined, from Dr. Fagan's cases, to adopt the method of excision, but only in children or young adults; as to him, in adults, it still seemed unjustifiable.

Dr. Anderson referred to the success of Mr. Croft, and stated that he had heard him say that old excisions were turning up now and then, and gave considerable trouble in after-operations.

Dr. Harkin thought excision a better operation than amputation, and that the case of No. 1 was surgically successful; had the child been under happier auspices, the result would have been equal to the others. He did not think the limb would become shortened when the epiphyses were left intact, and the arterial supply not interfered with. He supposed Liston's method had been adopted.

Dr. Wheeler said in all cases he thought conservative surgery should be tried first, and then excision, and, failing this, amputation should be performed. He thought it of great importance that the patient should be left as long as possible in the convalescent home. As regarded statistics, he placed no reliance in them, and his experience of surgeons amounted to this, speaking generally, that the man who advocated excision operated at an earlier date than the amputator—so early, if he was anxious to have a good list of successes, as to sacrifice life in cases where conservative surgery would have turned out a sound limb; while, on the other hand, the blind believer in the *vis medicatrix naturæ* waited till the stage of exhaustion had set in, and his excision often failed. He thought the cases before the Society spoke for themselves.

Dr. Esler thought the operation not only justifiable, but, in carefully-selected cases, imperative. The successes here, he thought, proved that the cases were judiciously selected; he agreed with Dr. Wheeler that many excised before there was justification for such a proceeding.

A New Operation for Detachment of the Retina.

Dr. M'Keown made some observations of a practical character on the surgical treatment of detachment of the retina. He referred to the plans of Bowman and Graefe—viz., the tearing of the retina, so as to open up a communication between the subretinal space and the vitreous humour, and stated that the results were generally so unsatisfactory that he preferred to allow the patients to suffer from the disease, rather than bring surgery into disrepute by practising unsuccessful operations. For some time he had been thinking that it would be far better to secure, if possible, a permanent opening from the sac beneath the conjunctiva. In that case a retreat of the retina would take place, and improvement of vision result. At last a case, so bad as to justify him in performing an operation, theretofore untried, and still offering some prospects of success, presented itself.

The following are the particulars :—

Thomas M'Kane, aged seventy, residing near Moneymore, consulted Dr. M'Keown, at the Ulster Eye, Ear, and Throat Hospital, on the 13th October last (1876). He stated that the left eye had been blind for fifteen years. There was a cortical cataract, with total loss of perception of light, from some deep-seated disease. The right eye had been very bad for a year. He could distinguish light from darkness, and could see white objects with bright light shining on them, but could not go about. On ophthalmoscopic examination, a very large detachment of the retina was observed. Only a very small piece of undetached retina could be seen at the upper part, all the rest being either detached or hidden by the detached part. The disc could not be seen. Still the detached retina retained its sensibility, the patient being able quickly and accurately to discern light thrown on the eye from the different direction.

October 14th.—Lifted flap of conjunctiva and exposed sclerotic between internal and inferior rectus, then, with a Graefe's knife, cut out a piece of sclerotic and choroid, about one line in diameter. That was the diameter of the perforation produced; but the diameter of the outer surface of the sclerotic removed, was very much larger. A large quantity of fluid escaped. The conjunctival flap was reapplied and secured *in situ* by a suture.

15th.—Great improvement. Could count fingers easily in different directions three to four feet, and could discern distant objects. The optic disc could be seen quite well, and the retina for a considerable distance around. The detachment had retreated, and did not seem now to be much elevated from the choroid. In cases of detachment it is generally found that bright illumination is necessary for vision. At dusk or by artificial light he could not see to move about.

Nov. 9th.—Vision has been becoming more misty lately. Exposed the site of the operation; found perforation quite closed; removed another small piece.

January, 1877.—Patient visited Dr. M'Keown this month. He had been able to move about quite well ever since. He has been using strong convex glasses, from which he derives much benefit.

Shortly after this case—viz., in the month of December, Dr. Wecker brought before the profession, in the Annales d'Oculistique, a new plan or treatment, which had been used by him, and some seven cases were reported. It consisted in passing a fine gold thread through the sub-retinal space, and securing it there by twisting its two ends outside on the conjunctiva. Dr. M'Keown remarked that if this treatment turned out to be tolerated, it would altogether change many of the prevalent notions about the danger of the contact of foreign bodies with the vascular tunic of the eye. At least, until more evidence were forthcoming, he would prefer a plan that was not likely to do harm, and to which little objection could be taken. A case soon came before him, in which it came to be a question between the drainage method of Wecker and a subconjunctival drainage through a sclerotic opening. The patient was a gentleman of about seventy-five years old, an invalid for many years, a sufferer from chronic bronchitis and weak heart. His right eye had been hopelessly blind, for a number of years, from detachment of retina by rupture of a vessel; and his left eye, sometime about September, 1876, came also to be affected with a small detachment by serous fluid above. The detachment gradually increased in extent, and ultimately the fluid, in obedience to gravity, descended and detached the retina extensively below, and to the outer and inner side. Dr. M'Keown advised an operation. The patient afterwards consulted Mr. Wilson, who also advised an operation, and spoke of Wecker. It was ultimately arranged that Mr. Wilson and Dr. M'Keown should consult together regarding the method to be employed. On the 31st January, 1877, Dr. M'Keown performed the following operation, assisted by Mr. Wilson:—After exposing the sclerotic between the external and inferior rectus, he thinned the sclerotic over a considerable space; a little flap of the thinned sclerotic was then lifted up and doubled back, and secured by gold-thread suture to the sclerotic. The choroid, of course, was cut, and a large quantity of fluid escaped. In this manner a little trap-door was made into the sub-retinal space. The conjunctiva was replaced and the gold thread hidden from view.

The object in lifting up the flap and tying it back, was to have, as part of the margin of the opening, the inner surface of the sclerotic, which it was surmised might not so readily unite to the rest of the margin, being a sort of serous surface as it were. For sometime the vision was greatly improved, the field of vision being restored; but after-

wards matters took a turn for the worse, and the vision relapsed. From the time of the operation the gold thread was not seen, and whether it lost its hold and allowed the little flap to slide back and re-unite, or whether the opening gradually contracted and closed, it was not possible to determine.

Dr. M'Keown said he felt satisfied that a permanent opening in the sclerotic, beneath the conjunctiva, offered the best hope for these cases, and it was simply a question whether such could, by any means short of the presence of a foreign body, be secured. When he had further experience he would communicate it to the Society.

At the date of publication of this, Dr. M'Keown reports that a short time since he was informed that Thomas M'Kane visited Belfast, in quest of glasses, and that he walked through the streets alone with confidence. As to the other case Mr. Wilson and he had some correspondence regarding further treatment, and it was arranged that the retina should be cut by plunging Graefe's narrow cataract knife through it. This was done on two occasions, but little change resulted in the vision.

Amputation through the Hip-joint.

The Secretary showed a patient upon whom the operation of amputation through the hip-joint had been performed two years previously. Dr. Newitt, under whose care she had been, being present as a visitor, the Chairman asked him for the history of the case.

Dr. Newitt then read the following notes:—

Mary Millar came under notice, for the first time, on April 3rd, 1873. She was then suffering from severe erysipelas of thigh, from which she recovered, having been treated with iron.

On June 16th, of same year, fracture of the thigh occurred while in the recumbent posture. The fracture was the result of scrofulous disease of the femur.

The limb was put up in as easy a position as possible, without any idea other than that of ease and comfort to the patient, as her health was so low that a termination in death seemed inevitable. She was, in every way, made as comfortable as circumstances allowed of. Medicines were given to sooth and support. In the course of some weeks the broken ends of the femur made their way through the integument in front of the thigh. The smell of the decomposing bone was very bad, and it was with difficulty that the air of the apartment could be kept pure—iodine, allowed to evaporate, and Condy's fluid were used for this purpose. She became much emaciated and extremely feeble, and continued so for months. Death appeared certain. The treatment was simply directed to

her comfort. Great care was taken to prevent bed-sores, to keep the atmosphere pure, to soothe her; and tonics were given when admissible.

Matters continued, as described, until January, 1874. During that month hæmoptysis occurred, and there was crepitation at the apex of one of the lungs. Gallic acid and sedative mixtures were used in treating the hæmoptysis.

During the summer of 1874 she improved a good deal; and the idea of removing the limb first occurred to me. The idea was, however, given up, in consequence of her health again failing. She commenced again to improve during the winter of 1874. I determined—her consent having been obtained—to prepare her for an operation, which should take place with as little delay as possible. I recollect being delighted that her stomach tolerated cod-liver-oil. I gave her this remedy, also a mixture of quinine, perchloride of iron, and in sol. chl. potass, also sedatives; and I looked carefully after the purity of the atmosphere.

On the 13th February, 1875, Drs. M'Connell, Whitla, and myself, proceeded to amputate the limb at the upper third of the thigh. The patient was extremely emaciated, although improved from what she had been some months before. When we were about to proceed, the question arose whether or not we should. The patient's desire for the operation, and the conviction that it was her only chance for life, the continuation of which—with the inability to move out of bed, necessitated by the presence of an extensively diseased limb, with a large mass of decomposing bone, which was polluting the atmosphere—was very cheerless; this consideration, I say, convinced us that it was our duty to operate.

Dr. Whitla having applied Esmarch's bandage, Dr. M'Connell most carefully administered chloroform. I made the flaps anterior and posterior, in the upper third of the thigh, by transfixing and cutting downwards. We found all of the tissues brawny and infiltrated; the bone was like a piece of rotten stick, as thick as a finger; I cut it through with a scalpel. I then proceeded to assist Dr. Whitla, who was attending to the arteries. He grasped the femoral artery with a forceps; I tied. The artery was brittle and apparently infiltrated with scrofulous matter; it broke with the tying like a piece of pipe-shank. The case looked hopeless. We felt certain we should leave her dead behind us. Dr. Whitla dissected the artery up about half an inch or more, and succeeded in tying it. Dr. Whitla then proceeded to remove as much of the diseased femur as possible, and ended the operation by disarticulating and removing the head of the femur. The flaps—which had been extended by me—were then brought together and dressed. About one hour after the operation the patient commenced to vomit. The vomiting continued, interrupted only by snatches of sleep, until the following Friday morning—the operation was performed on a Saturday. Administration of any aliment or medicine by mouth was impossible, as the presence of a piece

of ice on the tongue intensified the vomiting. I became most excited and interested in the case; and, whenever I was disengaged, I ran up to see her. I injected milk into her bowel several times each day. The vomiting having ceased, her stomach retained a little milk and lime-water. The emaciation and debility, at this time, were indescribable.

Having commenced to improve, she—to use an expressive phrase much used—"never looked behind her."

Dr. Whitla had assisted Dr. Newitt, and thought the notes read did not certainly overdraw the picture of the difficulties which presented themselves. As had been stated after the incisions were made, and the scalpel went through the bone, in making them Dr. Newitt asked him to take charge of the head and neck of the femur which he grasped with the lion forceps and disarticulated, a very easy matter, as the bone was extensively diseased, and came away in pieces; he then found that the acetabulum was diseased, and a sequestrum could be felt lodged in its floor. Going out to the county for an amputation of the thigh, as Dr. Newitt had written to him, it never occurred to him to bring a gouge with him, so he used the handle of the lion forceps as a gouge, and removed the *greater part of the acetabulum*, till the finger, introduced into the bottom of the wound between the flaps, *struck upon the thickened pelvic fascia*. The flaps being made for upper-third amputation were much too long, and their appearance was characteristic; they were riddled with old sinuses, and just looked like conical slices cut out of an amyloid liver, in which one could scarcely recognise any structure. In this lay the femoral artery, and the spot at which it was eventually tied, after two attempts, was close under Poupart's ligament. The aspect of affairs at this stage was, as Dr. Newitt says, truly indescribable, and I must say that though the result is excellent, if I knew I could foresee every difficulty as they now rise vividly before me, I would be very slow in undertaking such again. Before and after the operation the case seemed to me almost hopeless, and it was only Dr. Newitt's strong sense of duty, and the feeling that he must make some effort to prolong life, that caused the operation to be consented to, and I have no doubt death must have followed but for his self-denying exertions in the after-treatment.

The patient having undressed, the stump was exposed, and presented an excellent appearance; the low inflammatory deposit in the flaps had disappeared, and the parts looked as in a typically successful amputation through the joint. The patient was strong and healthy, and able to earn a livelihood.

Dr. Ross congratulated Dr. Newitt, and those who gave him their aid, upon the issue of the case, from Dr. Newitt's and Dr. Whitla's description, and what he saw, the success was a very decided one; he looked upon

such a result as a triumph of surgery. The stump was excellent. He agreed with Dr. Whitla that the after-treatment had much to say with the result; and he thought the free mountain air did a great deal.

Dr. Dempsey was surprised that no serious consequences followed the removal of bone in the acetabulum.

Dr. Esler made some remarks about the flaps; he had on one or two occasions noticed a flap liquify—literally melt away—when infiltrated as these were, and consequently he would not hesitate to operate on this account.

Dr. Browne, in speaking about the flaps, reviewed the different operations at the hip-joint, and advocated the anterior and posterior ones. From the history of the case he thought it possible that the cause of fracture was owing to acute necrosis; in this Dr. Coates and the Secretary joined him.

Dr. Wales was gratified to hear the details of this case, and commented upon the operation and its difficulties. He thought the persistence of the enemata treatment deserved great praise, and had much to say to the result, which was brought about by the entire removal of all the diseased bone.

Dr. M'Connell said, during the operation he thought the patient was at one time over from the chloroform; he was surprised at the time at the small quantity of blood lost—this was owing to the way the elastic ligature was applied, being more round the pelvis than the thigh, and above the ischial tuberosity.

The Secretary showed a limb removed the same day by Dr. Newitt for disease of the knee-joint.

Specimen of Larynx and Trachea.

The Secretary (Dr. Whitla) exhibited a larynx and trachea which he removed from a patient a few days before, upon whom the operation of tracheotomy had been successfully performed about *forty-six years* previously, and a tube worn all that time. Dr. Henry Purdon was the operator, and as he was present he would call upon him to kindly give some particulars of the early history to the members of the Society. The specimen showed a healthy air-tube in every respect, save the little aperture into the trachea where the skin and mucous membrane became continuous. He had dissected the muscles carefully, and found all those attached to the hyoid bone normal in every way except the omohyoid, which was reduced to the size of a mere thread; he thought this worth

noticing, as the function of the muscle was not satisfactorily known. The interior of the larynx was healthy, all traces of inflammation having disappeared except the contraction, which had probably followed cicatrisation, leaving the lower aperture of the larynx so narrow as only to admit an ordinary probe.

Dr. Henry Purdon said:—This case has been fully related in the twenty-fourth number of the first series of the *Dublin Journal*, and was written at the request of the late Mr. Carmichael. The tube through which she breathed may seem dangerously long, and likely to injure the posterior wall of the trachea, but I found the sterno-hyoid and thyroid muscles rendered a shorter one inefficient, and a curved one was worked out by the action of these muscles. Of course the tubes used were double, but this is the inner one of the third or fourth set which have been worn out since the operation was performed. I may mention that I found it necessary in the earlier ones to have a slight collar or rim round the inner extremity of the outer tube to prevent its being worked out. [He read the history as given in the *Dublin Journal.*]

The members present congratulated Dr. Purdon upon the extraordinary success of his operation. No one had heard of a case where the patient survived fifteen years and continued to require the use of the tube.

Case of Fibrous Tumour.

Dr. James Moore exhibited a drawing of a tumour recently removed from a man thirty-six years old. It was firmly fibrous in structure, and weighed 16 ozs.; it extended from behind the ear to the chin, pressed upon the trachea, interfered with deglutition, and disturbed the heart's action. He described the steps of the operation, which several members had witnessed performed with great dexterity. The wound healed rapidly. The tumour was dissected off the facial artery, in a long part of its course.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

President—Thomas Hayden, F.K.Q.C.P.

Secretary—E. H. Bennett, M.D.

Phthisis, fatal by Hæmorrhage.—Dr. J. W. Moore said: The specimen I have to exhibit illustrates fatal hæmorrhage in the course of pulmonary and laryngeal phthisis. Before the death of the patient I believed we had to deal with an example of the form of aneurism of the pulmonary artery first described by the late Dr. Rasmussen, of Copenhagen. But a careful examination of the neighbourhood of the lung where the hæmorrhage occurred has failed to discover any aneurism or dilatation of the vessel. There is, however, a small branch of the pulmonary artery, which, we have reason to believe, was the original seat of the hæmorrhage. The clinical facts are as follows:—A man, aged forty-four, a baker by occupation, who had ten children, of whom only four survive, was admitted into the Meath Hospital on the 5th of this month. The family history on both the father's and the mother's side was good; his wife and her people were also healthy. He was a hale man up to about a fortnight before Christmas last, although for twenty years previously he had been subject to colds, the result of his occupation, which involved exposure to violent alternations of temperature. He had been a baker for twenty-eight years. He noticed before Christmas that a cold crept on him gradually. Shortly after Christmas he began to expectorate a dirty green, phlegmy matter. He lost his voice from the first. He was originally under the care of Dr. Reuben Harvey, to whom I am indebted for a very accurate *post mortem* examination of the case. His appetite remained throughout, but he sweated, and there was much wasting. When admitted into the Meath Hospital he was exceedingly anæmic, although there was no history of previous hæmoptysis. His eyelids were puffy, and his urine scanty and highly coloured; there was some clubbing of his finger-nails. He was almost voiceless, and his tongue was furred. Dulness on percussion existed over the apices of both lungs, especially the left. Over the right lung there was crepitus at the end of every inspiration; his larynx was seriously engaged. He went on tolerably well, although suffering from high fever, until the morning of the 16th March, when he was attacked with violent hæmorrhage, and spat up a cupful of blood. We sought for the site of the hæmorrhage, and the occurrence of two physical signs led us to believe that it was a cavity in the right apex. The dulness which had been

previously inconsiderable there, was now complete, and a loud gurgle was also heard over an area extending two or three inches below the clavicle. The bleeding ceased, but returned next morning, and he died somewhat suddenly at nine o'clock, a.m., on the 17th. A *post mortem* was made eight hours afterwards. Both lobes of the liver were found to be enlarged, extending four inches below the ensiform cartilage. The lower margin lay obliquely across the abdomen, and extended half an inch below the last false rib. The great omentum was atrophied, the kidneys were slightly fatty, and the mesenteric glands enlarged. On opening the thorax neither lung collapsed. There were adhesions at the back of the left pleura, and between the lobes of the left lung. The right pleural cavity was almost entirely obliterated by old and dense adhesions; the pericardium was normal. The pleura at the right apex was much thickened. The white spot of Baillie on the visceral pericardium was particularly well marked. With regard to the left lung, the upper lobe was greatly enlarged, and on section was found to be completely devoid of air, the only air that escaped from it seeming to come from the minute bronchioli. The section passed through a cavity the size of a filbert, tolerably near the apex. This cavity can still be very well seen. The lung is of a dark colour, and is studded with tubercles in all stages of development. The lower lobe is beset with nodules similar to those observable in the upper. The entire free margin of the lung was emphysematous. The apex of the right lung contains a cavity as large as a middle-sized orange. In the posterior and external wall of the cavity a vessel was found covered with a clot of blood, and this seemed to be the seat of the hæmorrhage. The cavity was half full of blood. An examination of the lower lobe of this lung showed recent hyperæmia to a very considerable degree. Of course the question arises as to whether the sudden occurrence of hyperæmia was not partly the cause of the bleeding. Turning to the larynx, we find the epiglottis and the aryteno-epiglottidean folds, and the arytenoid cartilages themselves, enormously swollen. In the left vocal chord is a very distinct polypus. It was almost impossible to examine the vocal chords during life, owing to the exceedingly diseased condition of the parts. There was also considerable ulceration of the interior of the larynx, which extended to the necrosed junction of the alæ of the thyroid. It is quite clear that this man had long since had attacks in the apex of the right lung. The changes visible there are evidently of old standing. The amount of connective tissue is sufficient to indicate that, and also the great thickening of the pleura, which in some places is nearly a quarter of an inch thick. There can be very little doubt that, in addition to this old-standing disease, an acute attack, probably of diffuse deposit of tubercular matter, came on prior to Christmas, and that this, in turn, was followed by the pneumonic processes which are now observable in both lungs. In connexion with this case

I beg to lay before you a very good drawing of an aneurism on a branch of the pulmonary artery traversing the wall of a cavity in the lung. The case was laid before the Society in 1871, by Dr. Bennett, and was the first one of the kind recorded in this country, as far as I am aware. In the last session of the Society, Dr. Kendal Franks exhibited a second case of aneurism of the pulmonary artery. As I have already said, this pathological condition was first described by the late Dr. Rasmussen, of Copenhagen.—*March* 24, 1877.

Acute Tuberculosis.—Dr. Hayden said: I beg to submit an example of acute general pulmonary tuberculosis in a child of fourteen. The patient was admitted into the Mater Misericordiæ Hospital on the 7th of this month, suffering from bronchitis of a very aggravated kind. She was then suffering from extreme respiratory distress, and was somewhat incoherent. The history we obtained from her was shortly this:—Up to a fortnight previous to the 7th she had been in excellent health. She then began to complain of feverishness and cough. The cough was at first harsh and dry. In the course of a few days she became exceedingly weak, and was obliged to seek admission into the hospital. When I first saw her, her condition was that of a person suffering from severe bronchitis. She had copious purulent expectoration; her lips and finger-tops were livid; she gasped for breath, and could not lie down. After a very brief observation, I had no difficulty in determining that the case was one of acute pulmonary tuberculosis. She died on the 18th, three days after her admission. The brief interval between her admission and her death afforded only an imperfect opportunity for physical exploration of the chest. Owing to the loudness of the bronchial *râles*, and the confusion of sounds thence arising, it was next to impossible to make out any definite stethoscopic evidence of local disease. The *râles*, however, in the upper parts of both lungs were significantly loud, and somewhat metallic in character. The viscera are now before you, exhibiting, as you will perceive, a rare example of this form of disease. The entire of the lungs are studded throughout with tubercles, some the size of a pea, but the majority much smaller. There is scarcely a part of either lung that is not studded. In the apices of both lungs, especially the left, they have attained great magnitude, and undergone liquefaction. There are very minute cavities in the upper part of the left lung, and in the vicinity of these many of the tubercles have undergone caseation. The condition of the right lung is nearly similar; it is studded throughout with tubercles, each of which is surrounded by a circle of hyperæmia. There is also a cavity in the apex of the right lung; the entire organ being studded with tubercles. In the lower part they are more minute, and less advanced towards caseation. The lungs are voluminous, and their bases are attached firmly to the diaphragm, which presents a honeycomb appearance

on the upper surface. The parietal pericardium is free from implication, and the heart is healthy. On the surface of the liver there are flakes of false membrane. A portion of the anterior surface of the right lobe was attached to the diaphragm, and large flakes of false membrane are visible here. On the under-surface of the liver, in several situations, are isolated tubercles; one of firm consistence is seen upon the anterior surface of the right lobe, projecting by more than half its circumference from the surface of the liver. These tubercles give a feel to the finger as of sand or grit embedded in the surface of the liver. I have not been able to find any tubercular deposit in the substance of the liver itself. The spleen presents several minute tubercles embedded in its surface. The intestinal canal is likewise engaged. The lower portion of the ileum presents an ulcerated Peyer's patch; and in the immediate vicinity of the cæcum caput coli there is a patch the constituent glandules of which are all eroded, exhibiting the earliest stage of tubercular ulceration of the bowel. This is the only portion of the alimentary canal which seems to have suffered. Reading the case backward, from the death to the first illness of the child, I cannot hesitate to conclude that the reputed date of her illness—namely, a fortnight before her death, was not the real date. There can be no doubt that the apices of both her lungs were engaged long previously—in fact, this was a case of tuberculisation of the extreme apices of both lungs, perhaps, in a latent condition, until the child was exposed to cold and had an attack of bronchitis with fever; and then, the flame having been kindled, the disease diffused itself through the entire body, engaging not only the remainder of both lungs, but also the abdominal organs. We are perfectly justified, however, in stating that the child's illness, in a clinical sense, extended over only a fortnight.—*April* 14, 1877.

Aphasia.—Dr. R. M'Donnell said: Cases like that which I am going to lay before the Society have an especial interest at this time, when the views tending to localise brain-disease have been assailed by so distinguished an authority as Dr. Brown-Séquard. I shall not enter the lists as a partisan on either side in this interesting discussion, but confine myself closely to the pathological facts observed, and the history of the case.

Stephen W. C., aged sixty-four years, by occupation a museum porter, was admitted to Dr. Steevens' Hospital on March 25th, 1875. For some years he had been a man of rather intemperate habits. The following history of his case, previous to admission, was obtained from his wife:—For some months before his illness the patient had on different occasions become partially paralysed on the right side; these attacks occurred quite suddenly, and always commenced with loss of speech, but yet the patient appeared quite conscious of all that was taking place around him. The

first of these attacks lasted about twenty minutes; the subsequent ones varied from five to ten minutes. A short time after each attack the patient always became quite well, and did not appear to suffer in any way, with the exception that he was somewhat nervous when they became frequent. Having complained continually for some time of a pain in his left cheek, at length, in March, 1875, after eating his dinner one day, she observed him falling off the chair on which he was seated, and, on raising him up, found that he could not speak, and was completely paralysed on the right side. She immediately summoned medical aid. He was at first treated at his own home by my colleague, Dr. E. Hamilton, and subsequently admitted to Dr. Steevens' Hospital under his care on March 24th. He remained under our observation in Steevens' Hospital for nearly twelve months (until February 15th, 1876), and subsequently became an inmate of the South Dublin Union Workhouse, where he died at the close of the same year. I am indebted to Dr. Jennings for the opportunity of making an autopsy, but unfortunately have not been able to get the entire of the spinal cord. The brain, pons, medulla, and upper portions of the cord have been carefully hardened, and admirable sections made after freezing. It is to these that I wish especially to direct the attention of the Society.

While in Steevens' Hospital many of the members present had seen the patient, among others the President, Dr. Hayden; the chief features of the case, therefore, are not new to them. The patient had been completely aphasic; he was unable to speak one intelligible word. The only sounds he could articulate were ti-ti-ti. There was no affection of the tongue, palate, or larynx; he could whistle and sing when desired to do so. When asked any question he could only reply (with a bright look as though he thought one stupid for not understanding him) ti-ti-ti. From the commencement to the end this condition never altered.

At first the paralysis of motion in the right side was complete; he was unable to stand or walk, and had no use of the right arm, which was limp. A gradual and steady improvement took place in this respect; he recovered so much use of the leg that he could walk about tolerably well, and could raise his right arm to his mouth and over his head. Rigidity came on slowly; this after a time diminished, but did not disappear. Sensation was not affected. He was right-handed. Emotional excitability was marked.

To the following pathological facts I would now direct the attention of the Society:—

The left half of the brain is obviously smaller than the right. The left carotid artery is remarkably diminished in size compared to the right; all the arteries are atheromatous; the patches of atheroma in the walls of the vessels on the left side in some places much diminished the calibre of these vessels.

Fig. 1.

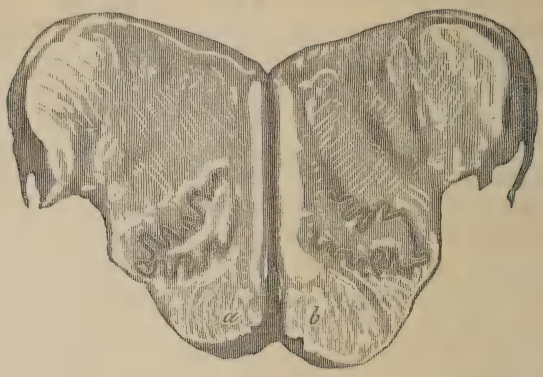


Fig. 2.

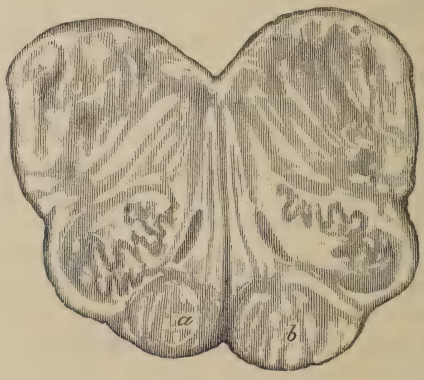
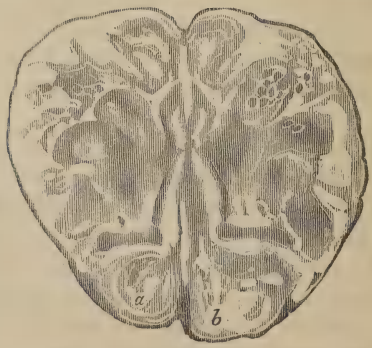


Fig. 3.



The third frontal convolution has disappeared altogether; the first and second frontal convolutions are not engaged in this destruction; they still exist; the destruction is (so far as the surface of the brain is concerned) most definitely limited to the third frontal convolution.

The accompanying sections (transverse and vertical) of the brain, which have been accurately photographed by my pupil, Mr. R. A. Hayes, do not show the same definite limitation of the lesion as it approaches the motor tract. It is true, absolute disorganisation seems confined to the third frontal convolution, but there is round the confines of the motor one evident organic change.

The entire of that portion of the brain supplied by the Sylvian artery was not engaged. If so, the superficial lesion would have extended over all or nearly all of that region covered by the parietal bone; but it was not so. The branches of the Sylvian artery going to the third frontal convolution and the parts immediately contiguous must have been completely blocked up.

A series of sections made at different points through the pons, medulla oblongata, and cord, show even to the naked eye the lesions which Cruveilhier and Ludwig Türck have already pointed out as existing in these parts. The longitudinal fibres passing through the pons are seen to be much reduced in number. [The accompanying woodcuts, taken from photographs, show the relative difference between the right and left pyramids; they are taken from sections exhibited to the Society and slightly magnified.] Fig. 1 is a transverse section through the medulla oblongata at the level of the summit of the olivary body; Fig. 2 lower down at the lower part of the olivary body; and Fig. 3 still lower beneath the level of the olivary body altogether; in each *a* represents the left, and *b* the right anterior pyramid.

I have already said that I was only able to obtain a portion of the spinal cord. I was not able to trace the secondary changes described by Türck quite so satisfactorily. At the decussation of the pyramids the degenerated fibres cross to the right side, and lesion seems chiefly to extend along the superficial part of the lateral column.—*April* 14, 1877.

Aneurism of the Aorta.—Dr. Lyons said: I cannot say that the specimen I am about to present offers any features of a very uncommon character; but still, as a good example of aneurism in the cavity of the thorax, it is worth placing on record. It occurred in the person of a man who had nearly twenty years service in the army. He had been in India and elsewhere; but there does not appear to have been anything in his history while on foreign service which could in any manner account for the occurrence of aneurism in his case. In recent years he undertook the duty of instructor in a gymnasium; and, being a lithe, well-shaped, active man, took a considerable part in the more violent forms of

gymnastic exercise, particularly vaulting over the bar, which, I was told, was one of his favourite feats. He was admitted into the hospital with the disease fully developed. An aneurism of very large size existed in the anterior portion of the aorta, presenting the appearance of a tumour of irregularly defined form in the central part of the chest, and occupying a site under the third, fourth, and fifth ribs on the right side. In this situation two little elevations, or monticuli, presented themselves, separated by a rib. These presented the ordinary phenomena that we are all familiar with, of double motion, and the double sounds of a well-marked thoracic aneurism of the false variety. From the earliest period of the case there was no doubt as to the diagnosis. This man's sufferings were of a very severe and aggravated character. On his admission he complained of intense pain, which was only relieved by considerable hypodermic injections of hydrochlorate of morphia. I have rarely seen an expression of more agonising suffering than the poor fellow exhibited when the period for the use of morphia arrived. It may be mentioned as a remarkable feature in the case, although one not unfamiliar to us, that the effect of the morphia in allaying the pain was almost instantaneous, while its hypnotic effect did not come on for two hours afterwards. He stated that the moment the contents of the needle were discharged under the skin he felt instantaneous relief; and he used then to sit up in bed quite cheerful and to express himself as in a state of perfect ease and comfort; and for many weeks regularly he did not exhibit signs of hypnotism for two hours afterwards. The relief procured by the morphia at first lasted for nearly twenty-four hours, but that period was soon reduced to twelve; and when that period was on the point of elapsing it was most singular how suddenly the sensation of pain would come on, and then he would call in a loud and agonised voice to have the injection of morphia immediately performed. He was attended with great and, I may say, affectionate kindness by the two resident pupils, whose services in administering the morphia were latterly more frequently required in order to control the extreme and urgent pain. A leech or two was occasionally applied, which, in some surprising way, gave great relief. He suffered much from a peculiar spasmodic difficulty of breathing, which was controlled most successfully by the inhalation of a mixture of chloroform and lobelia, which gave him immense relief. You will presently see that there was not an amount of physical pressure on the trachea to account for the suffering in respect of his breathing that he complained of. Although the aneurism is of considerable size, and evidently pressing on the bronchial tubes, there never was any considerable hæmoptysis. On one occasion he spat up one or two streaks of blood. There now began to be developed another feature, which added very much to his sufferings. Considerable swelling of his lower extremities came on, and his urine, on examination, was found to be highly loaded with albumen. Dropsical

effusion now set in almost everywhere; and no doubt this, in a great measure, hurried on his death, for the case is an additional example of death from an aneurism, without rupture of the sac, in that sudden way which so commonly terminates life in those unhappy cases. He died in his sleep, perfectly gently and tranquilly; having on the evening previously expressed himself considerably relieved, he went to sleep, and was, in fact, found dead in the morning. Dr. Harvey made a *post mortem* examination with his usual care; and we find a condition of things very familiar to members of the Society, although at all times interesting. For a comparatively young man, of not more than thirty-six or thirty-seven years of age, the aorta is in a state of very extensive atheromatous disease. The cavity of the aneurism, which is now stuffed with hair, is of very considerable dimensions. It occupies a large part of the ascending and the transverse, and some considerable portion of the descending part of the arch of the aorta, and is large enough to hold more than a quart of fluid. A few ill-defined coagula exist; but there is no attempt at regular lamination in the sac. The aortic valves seem competent. The aneurism does not start from any well-defined point, but seems as if there was a general and uniform distension of the whole descending and ascending portions of the arch. The sac thrusts itself forward to the right side, somewhat upwards, and you see the remains of the two monticuli which were apparent during life. These two little tumours beat with extraordinary violence during life, so much so that we daily expected one or the other of them would have been ruptured. The capsules of the kidneys are thickened, and the structure of the organs very dense; and Dr. Harvey and I have no doubt that they are in a condition of considerably advanced cirrhosis. This combination of renal disease with atheromatous disease of aorta is not, I believe, common—at least I do not find many instances of it in the records of the Society. What there is in the special history of this case to account for it I have not been able to unravel. The heart is very considerably enlarged, but, beyond being hypertrophied, it does not show any evidence of valvular or other disease. The valves are perfectly competent, as the sacs hold water when filled.—*April* 21, 1877.

Phthisis with Diabetes Mellitus.—Dr. Hayden said: I beg to submit an example of a disease of every-day occurrence, but which, from the advanced state of disease exhibited, and the peculiarity of the changes in some respects, merits special notice. The case is one of diabetes mellitus, with consecutive tubercular development in the lungs, and extensive gangrenous abscess. The patient was a man of about twenty-seven years of age, a carpenter by trade, and of exceedingly intemperate habits. He was of fair complexion, and of phthisical family history. He was admitted into the Mater Misericordiæ Hospital on the 27th of last January, and gave the following history of himself:—His health had been good, until

about nine months previously, when he began to lose flesh, and to experience insatiable thirst. When admitted, he was coughing, and had all the symptoms of diabetes accompanied with phthisis. He was then passing 180 ounces of urine in the twenty-four hours, the specific gravity of which was 1,040, and it contained a great deal of sugar. He was very pallid, coughed frequently, and expectorated copiously. On the 27th of February, it was noticed that the specific gravity of his urine had fallen to 1,030, and that it contained very little sugar. On the 12th of April the specific gravity of the urine had fallen to 1,020, and no sugar could be found in it. The physical evidence of disease in the lungs was then of a very decided character. The patient had been admitted for my colleague, Dr. Nixon, and, during his temporary absence from hospital duty, the charge of the case had devolved upon me. I examined him only once or twice, and found evidence of a very large cavity in the left lung, extending nearly from apex to base. There were all the physical signs of a cavity, except the splashing phenomenon. Indeed, so decided were they, especially the metallic tinkle, the hollow sound on percussion, and the cavernous breathing, that I was not certain at first whether the case was not one of pyo-pneumothorax. I subsequently came to the conclusion that such was not its nature—a very large cavity existed. He expectorated pus by the pint, with very little effort of coughing, and the fœtor was such as to render it very difficult to approach his bed. The day before his death, which occurred on the 17th inst., he suffered extreme pain in the left side. An examination of the organs was made with great care by my resident, Mr. Horan, to whom I am indebted for the notes of the case. The right lung is rather voluminous, and is studded throughout with masses of caseous tubercle. In several situations the tubercle is in process of softening. At the apex the nodules are very large. The left lung presents a condition not often witnessed. The entire of the upper lobe has been excavated. The anterior portion of the inferior lobe has likewise been in great part removed. The remarkable cavity thus caused is traversed in all directions by dense bands of fibrous tissue, including the blood-vessels, which are solid in almost every instance. Whether the absence of splashing was due to the peculiar conformation of this vast cavity, traversed as it was in every direction by fibrous bands, and occluded blood-vessels, I am not prepared to say. It is, however, certain that the absence of splashing, conjoined with free and copious expectoration of pus, may, as in this case, be taken as distinguishing a large vomica from an ordinary example of pyo-pneumothorax. It is known to every physician that phthisis is of very frequent occurrence in the progress of diabetes mellitus; and we may suppose that the intemperate habits of this man still further favoured this complication. Diabetes, moreover, in a case of supervening phthisis,

is generally characterised by gangrenous abscess of the lung. There was no special disease of any other organ. The heart is rather small, as is commonly the case in wasting affections, and has a well-marked milk spot on its anterior surface.—*April* 21, 1877.

Ascites; Thrombosis of Vena Portæ.—Dr. Lyons said: I wish to bring under the notice of the Society the recent parts taken from a case, which, in a practical point of view, presents a great deal of interest, while in a pathological aspect it is also one of considerable importance. The case is one which has been under my observation for several years, and which illustrates the practical value of the operation of paracentesis in dropsy of the cavity of the abdomen. It was that of a female aged between forty-five and fifty. She had been in the rank of a lady's maid, and all her early history was that of a female of respectability, and there was no possibility of supposing any taint in her system. She was married, and had three or four children. She was admitted into the Whitworth Hospital in the year 1870, and was then labouring under extensive dropsical effusion into the cavity of the abdomen. There was a very faint yellowish tinge in the conjunctiva, but no marked jaundice. There was a good deal of pallor in the face and body generally. There was no albumen in the urine, although there was some œdematous swelling in the lower extremities. Her state was one of great urgency. There was undoubtedly a large amount of fluid in the cavity of the abdomen. Grumous vomiting set in, and everything seemed to promise a speedy dissolution. She was tapped early in May, and sixteen quarts of fluid were drawn away. Very remarkable relief was experienced, but the fluid reaccumulated with considerable rapidity; and for a period dating from the beginning of May, 1870, down to the close of 1871, the fluid accumulated with such rapidity that she required to be tapped at intervals of between a fortnight and three weeks, expressing on each occasion great distress from the swelling; and when the swelling had increased, a certain amount of vomiting of dark grumous fluid invariably set in. At this period I had no idea that the case was anything but one of ordinary cirrhosis of the liver, temporarily relieved by the operation of tapping. Between May, 1870, and December, 1871, she was tapped in all thirty-five times, and the operations gave exit to a quantity of fluid amounting in all to 500 quarts. The contents of the abdomen varied on different occasions, from 12 to 14, 16, and sometimes 18 quarts, the maximum being somewhat over 18. The period of the case now arrived at which its main interest commenced. After the last tapping in December, 1871, her condition slowly and gradually amended, and from that date until the present time she never required to be tapped. She occasionally presented herself at the hospital for examination, and there was apparently a very small quantity of fluid in the cavity of the

abdomen; but there was no urgency about the symptoms, no desire on her part to be tapped, while on the former occasions she had been extremely urgent in her requests to be tapped when the fluid reached a certain amount. Her condition, from month to month, and from year to year, now improved, and she was gradually able to resume her avocations, attend to her family, and walk a considerable distance. Her whole appearance had greatly improved; and for all practical purposes the effusion into the cavity of the abdomen had entirely ceased, and there seemed to be no tendency whatever to the re-formation of the fluid. Since that period she regained and enjoyed, on the whole, very tolerable health. About ten days since she sought admission into the hospital in a perfectly moribund condition, saying how much she regretted she had not come in earlier, and that she felt quite sure she was coming in merely to die in peace. Her state was then very remarkable:—She was almost in a condition of complete collapse; her pulse was extremely rapid and very small; her tongue was dry and parched, and she complained of intolerable thirst; she had also great tenderness over the abdomen, and at a point which corresponded with the left mammary region complained of very acute pain. Everything that was possible was done to try to save her, but within about forty-eight hours after her admission to the hospital she breathed her last. She felt so much pain in her left side that she was fully persuaded that a rib had been fractured in some way that she could not account for; and, on examination of the site of the sensation, it was found that a rib had been fractured. How that occurred has never come out from the history of the case, but the fact, as I conceive, has a good deal to do with explaining the mode in which the case terminated. A careful *post mortem* was conducted by Mr. Mullen, my clinical clerk, directed by Dr. Harvey, to whom I have been indebted on this, as well as on other occasions for most valuable aid. We found, in the first place, most extensive pleuritis, and, in the neighbourhood of the fractured rib a circumscribed abscess of considerable size, containing nearly half a pint of pus. The pleural cavity on that side contained a great deal of sero-purulent fluid, but not apparently communicating with the abscess. The lungs were in the third stage of pneumonic change. On opening the cavity of the abdomen, we found no amount of peritoneal fluid, except what could be accounted for by a most extensive recent peritonitis, the lymph being perfectly fresh on the surface of the peritoneum and the intestines. I proceeded to examine the organs which presented most interest, and at once looked to the liver; you have it before you. At this stage of the inquiry I am not prepared to state positively what the condition of the liver is. It is being submitted to careful examination, and I hope to have Dr. Harvey's report, to be included in the *résumé* of the case. At a glance it will be admitted that it is not a case of cirrhosis, which might have been presumed in the first

instance. I do not myself regard it as a case of cirrhosis, but that is a point for future determination, when a more careful examination of the viscera shall have been made. The liver weighs two pounds and two ounces only; and, taking the normal weight of the liver of a female of that age at about four pounds, it is considerably under the normal weight. I was anxious to ascertain the specific gravity of the liver, which, in my mind, is a most important element in determining the condition of the organs; and inquiries as to which you are aware that Dr. Aitken and I carried on on a tolerably extensive scale in connexion with the Crimean investigations; it was found in this case to be somewhat over 1060. Dr. Aitken and I had found in such cases the specific gravity of the liver to range between a minimum of 1020 and a maximum of 1054, giving a mean of 1044; so that with a specific gravity of 1060 this liver is somewhat denser than it should naturally be. You observe the peculiar yellowish change it presents. I will not finally determine the pathological diagnosis of the state of the liver until a later period. But you will observe at once, what was more strikingly apparent at the *post mortem*, that the vena portæ presents an example of partial obliteration by thrombosis by old fibrinous deposit, and a more recent, and still soft, deposit of blood-coagulum. The spleen weighs one pound four ounces. You see that it is a good deal engorged, permanently enlarged, and friable. All the tissues in the neighbourhood of the spleen are very much thickened, but the veins and other vessels seem quite free. The kidneys I do not consider to be extensively engaged—certainly not sufficiently so to account for the main symptoms of the case, as you remember that during the early period, which was the one of the greatest interest, there was no albumen in the urine. The heart is a comparatively small one, but healthy; the valves are quite competent to discharge their functions, and there does not seem to be any marked amount of disease in that organ. I examined the ovaries with great interest, but found no disease in them that in any manner accounted for the symptoms in the early period of the case. Summing up the features of the case, I would first call attention to the prolongation of life by tapping. The total disappearance of fluid, from the end of 1871 to April of this year, showed that practically the tendency to the formation of fluid in the cavity of the abdomen had, to all intents and purposes, ceased. You are aware that in some recent publications attention has been directed to this disease of peritoneal effusion; and some cases in *The Lancet* of this year fully bear out the value of tapping for the prolongation of life. We have here a case extending over a considerable period of time, and in which, as far as I can judge, the extensive effusion that occurred is not attributable to disease of the liver on the one hand, or disease of the ovaries on the other. Neither do I consider that the condition of the kidneys affords any explanation of the lesion or of the amount of the effusion. There is certainly

no obstructive disease in the heart to account for it. How are we to read the features of the case as presented in immediate connexion with the death of the patient? This most respectable woman was unfortunately not happily mated, and complained in the ward, after her last admission, that her husband was drinking extensively, and going to the bad, that her heart was broken, and that, in point of fact, she had come to die in peace and comfort in the place where formerly she had received so much relief. I am inclined to think that the extensive purulent development and inflammation in the cavity of the peritoneum and elsewhere may be accounted for in the following order:—That, in the first instance, as the result of some accident, there was a fracture of the rib, which, by irritation of the pleura, produced a circumscribed and well-marked abscess, which led to secondary poisoning of the system; and that then we had pleuritis and a low form of pneumonia, and eventually peritonitis, which seemed to be the immediate cause of the final issue of the case.—*April* 21, 1877.

ANOSMIA.

Dr. F. L. Knight publishes, in *The Boston Medical and Surgical Journal* of September 13, an interesting case of anosmia following a blow on the occiput. After discussing the etiology of anosmia, he gives a synopsis of several published cases. Reviewing these cases, we find that there are twenty-two in all, including Dr. Knight's: that nine of these had commonly recognised symptoms of fracture of the base of the skull; one had fracture of the frontal bone; the remaining twelve had not such symptoms. We find that in four of the nine cases with symptoms of fracture of the base, the blow had been on the occiput; in two on the right ear; and in one on the vertex. In six of the twelve cases with no symptoms of fracture the blow was on the occiput, the seat was not stated in four, and was the vertex in two. It is evident that the lesion in these cases might be either of the brain itself, at the origin of the olfactories, or of the nerves themselves. The cases in which anosmia has been the only symptom have naturally excited the most speculation. Dr. Ogle thinks that in them there is only rupture of the olfactory nerves as they pass from the bulb through the holes in the ethmoid. In regard to prognosis, we find that of the ten cases with other symptoms of fracture there was recovery in two, partial recovery in one, and no improvement in seven; of the twelve cases with no other symptoms of fracture there was complete recovery in one case only, partial recovery in one, and no improvement in ten.

THE LIVES AND WRITINGS OF O'FERRALL AND BELLINGHAM.[a]

To study the doings of those who have become great in any calling must aid, guide, and urge those who are entering on the same pursuit. I will, therefore, attempt to exhibit to you the characters and analyse the labours of the original officers of St. Vincent's Hospital; and that they are worthy of consideration is sufficiently proven by the presence here to-day of so many leaders of our profession who knew them well, and were aware of my theme. No two men were more unlike; indeed, they had but one quality in common—industry, but this they had in the highest degree.

Joseph Michael O'Ferrall was born in or about 1790, in Exchequer-street. His father was of humble rank; but his mother was a lady of superior refinement and great beauty. Owing to a change of creed, she was cast forth, penniless and friendless, from the house of her relatives, in Harcourt-street. Shortly afterwards she was married in St. Teresa's Church—the good Carmelites having found for her an honest, though humble, protector. Of these clergymen O'Ferrall was throughout life the especial protegé. One of them, the late Bishop Whelan, was his school-fellow, life-long friend, and finally his executor. It is believed that they were educated by Samuel Whyte, of Grafton-street, who had had such famous pupils as Sheridan and Moore. The mother of O'Ferrall in a few years became a widow, but she strove earnestly to educate most highly her two sons and daughter. The eldest son was a perfect English and French scholar, and, until sight failed, was a most constant student of every medical publication in the latter language. The younger son, Simon Ansley Ferrall, was called to the English Bar in 1835, and published an important work—"Parliamentary Law relating to the House of Commons:" London, 1837, 8vo, pp. 446.

Dr. O'Ferrall did not study medicine until he was twenty-five, having for some previous years supported himself, aided in procuring education for his brother and sister, and saved the money needed for entering the profession while acting as a clerk in the Blackpits Distillery. The apprentice-fee—at least 150 guineas—he paid to James Rivers in 1815; but he was shortly transferred to Carmichael, who succeeded the former at the Richmond Hospital. His name first appears in the lecture roll of the College of Surgeons with such great teachers as R. Dease, Colles,

[a] An address, at the opening of the Session of 1877–78, at St. Vincent's Hospital, by E. D. Mapother, M.D.; Professor, Royal College of Surgeons; and late Examiner in Surgery, Queen's University.

and Cheyne, and with such remarkable fellow-pupils as Jones Quain, M'Donnell (father of our president), Benson, Hargrave, Hutton, Ellis, and Ephraim M'Dowel. He was a favourite pupil of C. H. Todd, who at that time worked in a small dissecting-room near the Hardwicke Hospital, and also demonstrated in the College School. In 1819, Dease having perished by a dissecting wound, Todd was elected Professor of Anatomy, Physiology, and Surgery, but died young, leaving sons, who became so famous in theology, medicine, and archæology. The late Professor R. W. Smith told me O'Ferrall resided in the Richmond for five years—a fact which attests both his zeal and the respect his teachers had for him. This feeling was shared by his fellow-students; one of those above-named describes him as one of the most observant, self-reliant, and gentlemanly members of the class. Passing the Licence examination of the College of Surgeons in 1821, he was within two years elected by ballot as a member, his name being registered as "Farrell." All great men have their weaknesses; his was the desire to improve upon his patronymic. The Dublin Directory, 1826, describing the Maison de Santé, North Circular-road, sets down as surgeon "Mr. Ferrall," but further on announces that "Mr. Farrell" will treat scrofulous cases on Tuesdays and Fridays. Later Directories spell his name as "Ferrill." Finally Ferrall produced a specimen at the Pathological Society on January 15, 1842, and that day week appeared again as O'Ferrall. The pronunciation of the name which gratified him most was that expressive of universal superiority, "Overall." These changes of name made it difficult to hunt out his writings in various periodicals. In this Maison de Santé, with Sir A. Clarke as physician, and Carmichael as consulting surgeon, he worked well, and collected materials for his first and very able essays on Ileo-cæcal Abscess and Varicose Veins. As early as 1832 he became a member of the Royal Irish Academy; and so long did he hold his wish for honorary titles that in 1860—when over seventy—he was examined for the Licence of the College of Physicians. We are told of a still older candidate in the London College, Dr. Pearson, who, in his eigthtieth year, studied for admission, and died while reading Aretæus, that Greek classic being included in the curriculum.

In 1831, O'Ferrall was called to attend Mrs. Aikenhead, who had founded the Irish branch of the Sisters of Charity. Her life was jeopardised by spinal disease, and it was felt that she owed its prolongation for twenty-seven years to his skill. The Sisters had, since 1818, visited constantly in the existing hospitals of Dublin, and had found the number of beds afforded insufficient, being but 1 for every 252 of the population, while it was in Paris 1 for 180. It was determined to establish another infirmary, and several Sisters were sent to reside in "La Pitié" and "Les Enfans Malades," and there acquire the best modes of caring the sick.

Our institution, appropriately named after the illustrious St. Vincent de Paul, who had founded "La Pitié" and three other Parisian hospitals, was opened January 23, 1834, with O'Ferrall as its sole attendant. Within a year Bellingham was added to the staff. Time permits me to notice but one early fruit of the Sisters' pious labours. In a few years they reported that "in the homes of those who had been their inmates they had seen with pleasure the simple luxuries of cleanliness and wholesome fare supersede the long-prevailing habits of slovenliness and intemperance. They have spared no pains to render the hospital subservient to the broad principle of Christian charity which knows in its objects no distinction of creed or country, and measures the claims of the afflicted only by the degrees of their suffering or danger." Very soon after Dr. Gooch urged the authorities of London hospitals to obtain Sister nurses, exemplifying mainly the Beguines or temporary nuns.

For the first ten years O'Ferrall worked here with amazing industry, examining the urine of every patient, and making necropsies on nearly every fatal case. He designed our convenient pathological theatre, and originated the useful mode of examining the heart by cross-section two inches above the apex. He was an ardent clinical teacher, arranging the pupils in pairs, a junior and a senior, who mutually aided each other in case-taking, and in suggesting the diagnosis in each instance. On the foundation of the Pathological Society in November, 1838, he was placed on the Council, soon became Vice-President, and was one of the most frequent contributors of specimens to it. His communications there and his essays were learned, clear, and logical—erring perhaps a little in over-minuteness and egotism. Like Buffon, who re-wrote his "Les Epoques" eleven times, transcription was a pleasure to him.

His special *forte* was diagnosis, which in later years he usually established by the sense of touch, and many a limb and organ was saved by his discovery of deep-seated pus or tumours easily removed. At the Pathological Society in June, 1860, Dr. Stokes termed him a "master of diagnosis;" and, indeed, he might be said to fulfil the Johnsonian definition of a genius, "a mind of large powers, accidentally determined in some particular direction." He excelled, in the identification of abdominal tumours, the most difficult subject which medicine or surgery offers. I will tell you briefly of one most famous instance which redounds to his skill, but, I regret to say, not to his charity in regard to the feelings of others. In October, 1844, Bellingham admitted a woman who, according to an eminent obstetrician, still carried an extra-uterine fœtus, of which the twin had been born three months before. At several consultations the leading surgeons and obstetricians concurred in this opinion, declared that they unmistakably distinguished through the thinned abdominal walls the forearm and hand of a fœtus, and unanimously advised gastrotomy. Meanwhile O'Ferrall was in England, but

on his return he examined the case alone. He did not attend the consultation which was held just before the operation was to begin, but sent a short message to his colleague, declaring that the case was one of malignant tumour, and that operation was out of the question. Partly because of the weight which should attach to any dictum of O'Ferrall, and partly because the poor woman had become suddenly weak, the operation was put off. In a few days she died. With that candour which prompts truthful men to confess mistakes—and mistakes have advanced our difficult science nearly as much as successes—Bellingham brought the morbid specimen to the Surgical Society, and called on O'Ferrall to make known, for the first time, the reasons on which he had founded his diagnosis. In a lengthy speech of great ability he advanced several negative reasons, and said he depended mainly on the cachectic state of the patient, the comparative lengths of the supposed forearm, carpus, metacarpus, and phalanges differing from normal standards, and the flexibility of the part, which, if the limb of a full-grown fœtus, should have had considerable stiffness. When called on to explain his absence from the final consultation for the declaration of his views, he only replied "he did not think it prudent to make his opinions on the subject generally known before." He ran the risk of gaining a triumph with the penalties of another's surgical mischance and a patient's hastened death.

I knew O'Ferrall first in 1859, under the following accidental circumstances:—One night I was called to a gentleman living next door who became suddenly insensible, owing to a cancerous tumour having obstructed the current in the left internal jugular vein. Next morning I gave over the case to O'Ferrall, who had attended previously, but at his desire met him during the few days life lingered. Shortly afterwards a vacancy arose here, and I had the gratification of being recommended by him, and selected as surgeon to this hospital. At this period he retained scarcely any vision, owing to gradually increasing glaucoma, his pupils being always dilated extremely. He often attributed his blindness to over-use of his eyes in reading. By concentrating his visual organs for a few seconds he had some sight, and by means of a slit in a card could read line after line of print very slowly. He would find his way by the aid of what I may term a tactile cane, and with the assistance of anyone who would truly recount the phenomena of a case to him would make a diagnosis, and then promptly advise treatment, which were never fallacious. Without such aid his mistakes were often ludicrous. His memory was well and fully stored, and his judgment never erred. For example, I take a prognosis of his in regard to embolism (when that was a very new pathological subject). I asked his aid in the case of a country gentleman in whom a varicose saphena vein had suddenly become hard and tender. He warned the friends that

instantaneous death was likely within a few months from blocking of the pulmonary circulation. About eleven weeks afterwards, while standing at a fair, this gentleman dropped dead with symptoms which fully corroborated O'Ferrall's opinion. I have often seen him perform important operations, using a very thick-backed scalpel for the skin and his fingers only for the areolar tissue. You will readily believe that his prescriptions showed a very peculiar caligraphy, and for the last few years of his practice he took (or, I must confess, pretended to take) notes for any compounder to whom he afterwards gave directions. About this time he was consulted by many persons in the highest ranks of society, and my most painful memory is of the time these interviews occupied, for although I came on pressing business I had to spend many a tedious half-hour in the waiting-room at 15, Merrion-square, North. His receipts from practice were not half what he could have made them with a little more economy of time. In the examination by touch of hospital patients, he was indeed "slow but sure," and by no means outspoken of the opinions he had formed. If a leading question were put he would sometimes glance furtively at the interrogator as if he had proposed to steal his brains, and walk away without a word. I am told that during one of those tedious, mysterious, and silent palpations a student, strongly imbued with the spirit of Wallace, involuntarily sung out—"Oh, whisper what thou feelest," &c. Vesalius used to say that an anatomist, when even blindfolded, should be able to recognise every point on the most complex bone. O'Ferrall did more, for in the living patient his fingers made him familiar with any structure they could reach. He frequently and forcibly dwelt on the indivisibility of medicine and surgery, remarking that "he who has most carefully observed the congestions, infiltrations, suppurations, ulcerations, thickenings, contractions, and malignant diseases of visible parts, will most easily comprehend analogous changes in internal organs." He always assumed the mixed title of medical adviser to St. Vincent's, prefixing the word "chief" or "first," unnecessarily, for there were only two—Bellingham always used the name of "surgeon."

His private character was of the highest type—as a son and a brother he was unexcelled, but it was his lot to have lacked the softening and ennobling influences of the dearer relationships. His mother died in 1840 in his house in Rutland-square, and I am informed that his sorrow was most profound, and only alleviated by those true remedies—religion and unceasing study. The ambition which animated his earlier career was to reinstate this lady in the social position she had previously occupied. The same informant tells me that in earlier and poorer days he was most generous, and that his subsequent parsimony grew out of his being teazed for advice or charity by those whom he thought had wasted their time and money on other consultants. Of all doctors (I wish we had

some other more exclusive yet unifying name, like medicists) Radcliffe was the most avaricious in taking, the most princely in giving—O'Ferrall erred in the opposite ways. From the same source—the accurate memory and good taste of a lady who knew him well—I learn that when aged about thirty he was strikingly handsome, with bright intellectual eyes and clear complexion—such a person as the portrait in our hall represents. As to pleasures and occupations outside his profession, O'Ferrall's resources were few. At home he was fond of the society of literary, artistic, or musical friends, and his annual and sole recreation consisted in a few weeks stay in London, where he was a welcome guest with Brodie and other philosophical surgeons, or a circuit of a few Continental watering places. Of the most extended of these tours, Dr. Aldridge, with whom he travelled, wrote a pleasant sketch in 1857. Of later years he preferred our native spas at Lisdoonvarna, and gained much relief for the dyspepsia with irritability of temper which his enforced sedentary habits had engendered. In 1867 his fatal ailment began with partial palsy of the right leg, and by August, 1868, it had developed into almost complete ataxy with horrid pains. At that time he begged me to proceed to London to consult with Dr. C. B. Radcliffe, who only confirmed the opinion that the case was a rapid and hopeless one of sclerosis of the spinal cord. On December 23, 1868, while the late Mr. J. Hamilton and I sat by his bedside, it might be said he died by lines rather than by inches—one by one the intercostals palsied, and breathing most gradually ceased. Two hours before death, his mind being most active, I witnessed a document which disposed of the considerable fortune he had acquired. Two years subsequently the greater part was willed to this charity by Miss O'Ferrall, thereby fulfilling his often-expressed desire to serve the institution to which he had devoted the energy of his whole life. Like Griselda Steevens, she felt pride in fulfilling a brother's long-cherished intention. In accordance with his expressed wish, the remains were removed on the 28th to St. Teresa's Church, Clarendon-street, and the following morning therein interred—a great number of our leading citizens being present.

Speaking of one munificent donor reminds me that the generosity of another—my friend, the late M. B. Mullins (who had been an apprentice of Sir W. Lawrence)—is from this month forward to bear fruit—a splendid building with sixteen beds, available for the patients of other hospitals, having been added to our Convalescent Home, Blackrock.

I will now very briefly tell you the striking or original observations in surgery or medicine which O'Ferrall made within these walls; and those who are or were St. Vincent's men may well remember them, and feel proud of Alma Mater. They count about 109, relating to external and internal pathology, in nearly equal numbers. His first essay appeared in *The Edinburgh Journal*, July, 1831, for there was then

no Irish medical periodical. That this was not for want of able writers or good materials is proven by that very monthly number, for it contains remarkable articles by Corrigan, Stokes, Maurice Collis, and Browne, of Dublin. The paper is on "Phlegmonous Tumours in the right iliac region," a title which Dupuytren had used three years before; but some of O'Ferrall's cases date back to 1823, and the notes of the time are merely transcribed. He distinguishes three forms of the disease, and for the treatment of the acute advises enemata and mercury to salivation. He concludes with the very good advice—"In collecting the materials which should regulate our practice, we may and ought to be deliberate, but in conveying them to others it is our duty to be brief."

In 1832 he advocated for the subcutaneous section of varicose veins a straight knife, so thin, for the last half inch, that it readily turns without tearing the areolar tissue. He abandoned the operation through dread of phlebitis or erysipelas—the same bugbear which made Sir A. Cooper postpone the removal of a wen from the head of George IV. for years.

At the Maison de Santé O'Ferrall paid special attention to diseases of bones and joints; and during the first few years of St. Vincent's he worked well at the same subjects. His results were published in *The London Medical Gazette*, 1839. He shows that morbus coxæ may be simulated by periostitis of the femur and by cancer of that bone and of the ilium. He urges the treatment of periostitis by iodide of potassium, even after suppuration has begun, and earlier by incisions—a practice which he asserts originated with Sir P. Crampton. He always gave the iodide after food, when very large doses will be borne. Further, he gives the diagnostic mode, which we call here "the pelvic test," to ascertain hip-disease—namely, that if flexion or abduction be attempted, the muscles are on the alert, and bind together the femur and its socket, and they move as if the one piece.

In 1841,[a] appeared his well-known description of what he believed to have been an undescribed capsule of the eye; but, undoubtedly, Tenon, Dalrymple, and Malgaigne had some years before alluded to it. In 1846, at the Pathological Society, O'Ferrall merely claimed to have been the first to describe the bearings of this structure in diseases in or around the eyeball, and in operations for their removal. He named the capsule the "tunica vaginalis oculi," and well terms it "a second orbit or proper fibrous socket of the eye." Incisions for the removal of pus or tumours external to this capsule should be made in the sulcus of skin above the upper eyelid, whereas the superior palpebral sinus of the conjunctiva must be divided if the morbid products are within it. Lastly, he suggests the enucleation of the eyeball for diseases confined to it, instead of the risky operation of emptying the entire orbit, which up to that time was performed. This procedure is often termed "Bonnet's

[a] Dub. Jour. Med., 1841.

operation;" but the late Mr. Hildige proved (*Dublin Hospital Gazette*, 1859) that the French surgeon's essay did not appear for more than a year after O'Ferrall's. He enlarged on the same subject in 1845, in a series of lectures on orbital tumours.[a]

In 1841, O'Ferrall advocated the removal of tumours situated in areolar tissue, by a kind of rooting rather than dissection, remarking that at one point a difficulty will be met, and that it is here the vessels enter and must be dealt with.

Among his "Variorum" may be noted his treatment of albuminuria, especially that following scarlatina, by iron;[b] his explanation of aphonia in aortic aneurisms by pressure on the left recurrent nerve;[c] his hyperminute description of pendulous tumours of the skin;[d] his belief in the identity of scirrhous and encephaloid cancer, the differences in consistence being due to the amount of fibrous tissue proper to each site;[e] and his support of Bizot's theory of the symmetry of arterial morbid changes by cases of gangrene.[f] Of his anomalous cases[g] the following are a few:—(1.) Softening of both lateral lobes of the cerebellum without any alteration in muscular action. (2.) A large bony plate in the right crus cerebri, which caused left hemiplegia, divergent strabismus, ptosis and disorganisation of the right eye sixteen years before the death of the patient. (3.) Rupture of the anterior coronary artery and consequent tearing of the visceral pericardium. (4.) Aneurism of the superior mesenteric artery diagnosed during life. (5.) Six cysticerci found in the ventricular septum. (6.) Morbus coxæ, with separation of the pelvic bones, in an infant four months old. (7.) Cartilaginous degeneration of the bones of the left lower limb—twelve fractures having occurred over a period of twenty years. (8.) Emphysema of the subcutaneous areolar tissue of the abdomen from ulceration of the cæcum. In discussing this last case, he states he had often seen the abdominal walls kept largely protruded for hours together by hysterical contraction of the diaphragm, respiration being meanwhile performed by the upper intercostals. In the diagnosis of tumours, and the discovery of their sites and attachments, he was amazingly expert. A large fibrous swelling in the forearm was believed by many surgeons to require amputation, on the grounds that it moved when the wrist was moved to and fro, and was, therefore, embedded in the flexors. By causing the patient to grasp a ball in the hand, O'Ferrall showed that these muscles were free, and that the movements of the tumour were due to the alternate stretching and relaxing of the deep fascia. Upon the division of this structure the tumour was easily turned out.[h]

[a] Dub. Hosp. Gaz., 1846.
[b] Dub. Hosp. Gaz., 1846.
[c] Dub. Jour. Med., 1840.
[d] Dub. Jour. Med., 1847.
[e] Dub. Jour. Med., 1845.
[f] Dub. Jour. Med., 1849.
[g] Dub. Path. Reports, 1838-49.
[h] Dub. Jour. Med., 1849.

The following are some of the manipulative procedures which he originated:—The elevation of tumours, before operation, so as to let blood and serum gravitate from them. The case of vast scrotal tumour, in the treatment of which this expedient occurred to him, has world-wide fame. In detailing it he broaches the following doctrine in medical ethics:—"There can be no real weight in a mere majority in consultation, unless the opinion of each have reference to some common and acknowledged principle. Haste or inexperience might, otherwise, influence the decision, and an injudicious operation be performed." The mode in which he planned his incisions is worthy the attention of any operator.[a] His plan of strapping the breast, so as to isolate and compress the gland, as we do the testis, in cases of deep abscesses, was devised in 1840. It was a most merciful improvement, for up to that time Hey's cruel slicing process was usually, and amputation occasionally, performed.[b] He did not apply the somewhat similar principle to the treatment of anthrax for eighteen years afterwards.[c] The use of a gum elastic canula, seven inches long, and enlarged at each end, for the first two days after lithotomy.[d] The plan of opening pharyngeal abscesses while standing behind the patient. In doing so from in front, the patient's head is held erect, and the necessary depression of the tongue irritates the fauces, and makes the operation a troublesome and risky one.[e]

O'Bryen Bellingham was the son of the late Sir Alan Bellingham, and brother of the present baronet. The name is derived from a place in Northumberland, and the family can be traced back in a direct line to the time of the Conqueror. He was born December 12, 1805. At Feinaigle's famous school (now the Aldborough Barracks) he received his education, and so proud was that celebrated teacher of his pupil that he had a marble bust of him sculptured while he was in his fifteenth year. Having been apprenticed to James Duggan, he was educated at Jervis-street Hospital and the College of Surgeons School. In 1822 his name first appears among the 207 pupils on that year's roll. In 1828 he obtained his diploma. He then studied in Edinburgh under such illustrious teachers as Alison, Hope, A. Monro, and Christison, and graduated as M.D. of the University and Licentiate of the College of Surgeons in 1830.

On the 6th of May, 1833, he was elected a member of our College, and none was ever more devoted to her interests. He had been for some years one of the Examiners of the Pharmacy Court when the Professorship of Botany was established. Although he had such worthy competitors as Neligan and A. Mitchell, he was chosen unanimously for the new chair,

[a] Dub. Jour. Med., 1846.
[b] Lon. Med. Gaz., 1840.
[c] Dub. Hosp. Gaz., 1858.
[d] Dub. Hosp. Gaz., 1845.
[e] Dub. Hosp. Gaz., 1845.

and he still retained the examinership. In 1850 he resigned the professorship, and was elected a surgical examiner, and in 1856, on the death of Rumley, became the chairman of the court. For some years prior to his death he also acted as the honorary Librarian of the College and Secretary of the Surgical Society, in which latter office he was most devoted and indefatigable.

In 1835, a year after St. Vincent's was founded, Bellingham was elected surgeon on the recommendation of Archbishop Murray, and laboured here most assiduously till the year of his death. Although he resided at a great distance (63, Eccles-street) 9 o'clock always found him at his post. In 1850 he moved to 19, Kildare-street, so as to be within easy distance of the two institutions which divided his affections outside home. He enjoyed far too few vacations, and his constant application, no doubt, contributed towards his lamentably early death. The columns of *The Medical Press*, notably those of 1842–3–4, attest his industry as a clinical lecturer and a writer, often original, and always displaying that he was a learned and judicious practitioner, ready to test any innovation fairly promising. Most of the reviews in the same journal came from his busy pen, and for many years he most carefully edited the reports of the Surgical Society. Of medico-political articles he never contributed a line, if a masterly refutation of homœopathic doctrines (1839) be excepted. As a speaker he was clear and argumentative, never egotistical, and always brief; for some years before his death he suffered from a scanty supply of saliva, and every three or four minutes would pause for a short interval.

Of Bellingham it is difficult to pronounce a fitting eulogy. He was towards all men courteous and generous, and if he entered into any controversy it was to elicit truth—never to gain a personal triumph. One who knew him best, now the Nestor of our profession, said to me lately—"If any man disagreed with Bellingham, rely on it that man must have been in the wrong." The professional differences between him and O'Ferrall were not, however, unfruithful of good, for they spurred both to exertion. Edmund Burke tells us, "He that wrestles with us strengthens our nerves and sharpens our skill; our antagonist is thus our helper." His appearance was eminently intellectual and aristocratic, as you may judge from Kirk's bust, by which the College of Surgeons honours his memory. This is a photograph of it, taken by Chancellor. Just as his health failed a high-class private practice was attracted to him, his ability and industry telling surely but slowly because he was so unselfish and retiring.

In 1855 he underwent, by the loving hands of Cusack, Crampton, and Fleming, a serious operation which prolonged life and lessened pain for a while. In April, 1857 (about the period this second portrait was taken), I saw him for the last time at the Surgical Society showing a specimen of congenitally cribriform aortic and pulmonary valves which

he had just obtained here. His wasted appearance showed that recovery was not to be hoped for, and excited the most profound sorrow. He soon after retired to his brother's castle, and peacefully passed away on October 11th, 1857. Up to the very day of his death he occupied himself in revising the last pages of his great work on "Diseases of the Heart," which was issued a few days after the author was laid in the family tomb at Castlebellingham. In reviewing this book, a writer in *The Medical Press*, who knew the author most intimately, remarks—"In him were combined the most gentle disposition, the most perfect freedom from envy or guile, with the utmost integrity of conduct, and most accomplished manners. Few men have undergone greater annoyances, the offspring of professional jealousy in his inferiors, and few—few indeed—would have borne them with such a Christian spirit. It was in his painful and fatal illness that the noble mind of Dr. Bellingham shone forth with such lustre—he met excruciating pain with resignation, death without fear."

From boyhood Bellingham was a naturalist, and has left behind him the records of work which in itself would make a solid reputation. In 1838 he was one of the founders of the Dublin Natural History Society. The 13th and 14th volumes of the "Annals of Natural History," *The Medical Press* of 1839, and the address at the scientific meeting of the College of Surgeons, 3rd April of that year, treat of the generation, classification, and practical relations of entozoa in a most able and exhaustive manner. Such meetings, open to an appreciative lay audience, might be well revived in the College. Some of the foremost men in our profession have devoted themselves to zoological pursuits, of whom I will only instance Sir A. Cooper, who, when in the zenith of his fame, took the comparative anatomy chair of the College of Surgeons, and worked with the zeal of a single-purposed enthusiast. Sir Astley was for many years, in conjunction with Sir B. Brodie, Sir C. Bell, Babington, and Bright, examiner in the Veterinary College, and its President, Coleman, he calls "for forty years his best male friend." It is often wondered that in this country we have no institution for the study of veterinary science, and just now the carrying out of the Cattle Diseases Acts gives abundant work for those qualified by examination elsewhere in bovine and indeed in human medicine.

During the years 1836–9 Bellingham searched for intestinal worms in the bodies of 90 persons of various ages in our pathological theatre. In 83 he found some variety, and in 81 the tricocephalus dispar existed. From the very constant presence of these parasites, he regarded them as not such common factors in disease as is generally believed. He showed the fallacy of the idea that our tapeworm is solitary, and discovered a new species of round worm, which he named "ascaris alata." Some leading helminthologists support the distinctness of this animal, but

Cobbold and others regard it as identical with "ascaris mystax," a common entozoon of the cat. His papers in the "Annals of Natural History" form to this day the standard reference, for they identify and describe, in a very full and original manner, thousands of entozoa, to obtain which he dissected 270 mammals, 360 birds, and 380 fishes. Most of these specimens he presented to the College of Surgeons Museum, but the ink of the labels having faded, the identification of them now is very difficult. I may mention that he was an excellent dissector and taxidermist, so that most of his donations of hearts, aneurisms, &c., were at once ready for the shelves.

His original clinical investigations here were very numerous. I will most briefly refer to a few. The use of liquor potassæ in psoriasis, of sulphide of potassium in the parasitic form of pityriasis, the observation of complete shedding of the nails in pemphigus, and the erysipelatous nature of elephantiasis of the leg, were contributions of his to dermatology. Finding that he had been anticipated in the last-named view by Dr. Benson (Jan., 1839), he announced the fact at the Surgical Society with the honesty so characteristic of him. His lectures on entropium, cataract, and other ophthalmic subjects in *The Medical Press*, 1847, are very able. He records a case of sloughing of the left cornea in a patient with right hemiplegia, and suggests that it was due to a clot involving the ophthalmic artery or cavernous sinus. This effect is now attributed to lesion of the trifacial nerve. He was one of the first to recognise as scurvy an outburst of disease in the famine year (1846), and to prove that it depended on want of potatoes in the dietary of the people. The administration of oxide of zinc in chorea, and of mercury in strumous diseases of the joints (which O'Beirne had advocated many years before), were established mainly by him. A chart of auscultatory signs, prepared by Bellingham, did much to spread a knowledge of the subject amongst Irish and British practitioners.

Amongst his noteworthy operations were tapping the skull for hydrocephalus, the patient surviving three weeks; Symes's amputation for the first time in Dublin (June, 1847), ether having been inhaled, very soon after the discovery in America; and a case of ligature for cancer of the tongue, in which the posterior part of the section reunited before the separation of the anterior part was completed. When the slough came away with the ligatures it was swallowed by the patient, who was eating stirabout at the time. In a case of secondary hæmorrhage after amputation in the lower third of the thigh, he tied the femoral, and on the following day the external iliac artery. When the bleeding first arose (12th December, 1848) it would have been fatal save for the prompt skill of Mr. Tufnell, who chanced to be lecturing on military surgery in this theatre at the time. Bellingham's proceedings in this case alone would mark him as a prompt, well-trained surgeon.

The book on which Bellingham's fame mainly rests is, "Observations on Aneurism and its Treament by Compression"—a shabby paper-bound duodecimo, published in January, 1847. It abounds, however, in learning, logical argument, and originality, and, as it is scarce, republication is very desirable. My time being limited, I will quote for you only a couple of instances of each of these qualities in it. He shows that in the time of Dionis every man was bled, and most men's brachial arteries suffered, till, at last, a French edict ordained that a surgeon should pension every one whom he thus disabled. According to our Brehon Laws a somewhat similar provision was made in ancient Ireland. Amongst the famous works he analyses are, "Scarpa on Aneurism," and "Hodgson on Arteries." Just now, when prize essays are often decried, it may be well to note surgery gained by this kind of competition. He allows that in 1810 three Parisian surgeons had cured popliteal aneurisms by compression of the femoral artery. *The* argument of the book is that an aneurism cures by stratified or laminated fibrin deposited by the blood as it flows through the sac—a theory he first broached in the Surgical Society in 1843, and his principle of treatment is to weaken only the current through the artery by pressure. Todd at least hinted at these principles in 1822. He well enunciates the doctrine which now holds sway, as follows:—"To effect the coagulation of the blood in an aneurismal sac in a living subject, very considerable pressure would be necessary. The compression likewise, it appears to me, would require to be made on both the cardiac and capillary sides of the sac, and very near the latter; while the process will necessarily be so painful that few patients would be willing to submit to it."

Anæsthetics, shortly afterwards introduced, supplied the one requirement, and O'Ferrall had the credit of suggesting expedients to meet the other. We read[a] that he pressed below the sac to keep it full of blood, and insisted on the flexed position to narrow the calibre of the vessel at the hip and knee, and later on he advised tight bandaging. In the first case in Ireland in which pressure cured an aneurism—that by M'Coy in 1824—complete stoppage was borne because the patient was drunk, and alcohol is an anæsthetic. The pain at the moment of consolidation Bellingham explained by pressure on the nerves by the enlarged collateral vessels. Mr. Tufnell may be quoted in favour of the complete stoppage of the blood and its rapid coagulation, and I select him the more readily as he was an enthusiastic supporter of Bellingham, whom he knew like a brother. In his famous case of the cure of three aneurisms in one patient, he says of the third treatment—"The degree of pressure employed was such as entirely to prevent direct circulation through the sac." Again, at page 69 of his able book (1851), he says—"In by far the majority of the cases which have been rapidly cured, complete arrest

[a] Dub. Jour. Med., 1846.

of circulation has been made." It must be allowed that aneurisms may cure by layers while the blood flows through them, and in the aorta no other way is possible. Of this subject Mr. Tufnell is the great exponent.

Bellingham claimed the introduction (August 9, 1844) of two points of pressure, which has the manifest advantages of less pain and danger of injury to the skin, and of allowing no interval of current which should flow while one instrument was being readjusted. Wilde, however, in a history of the subject, asserted a patient of Professor Harrison's had previously used two instruments. He was a carpenter and modified the clamp of his craft. The conflict of testimony is so direct that it is impossible to adjudge the priority; but Bellingham lost temper in the debate—an event which probably had not a fellow in his whole career.

On a Sunday, June 30th, 1844, an instrument pressing an artery got broken, and as on that day repair was impossible, Bellingham thought of a weight as a substitute, and thus this valuable aid in the treatment of aneurism was invented. In all later cases he used Carte's apparatus, which most admirably fulfils the purpose he had in view of moderating the arterial current.

Whether it depends on the provincial surgeons treating their own cases, or the decrease of syphilis, and the changes in our modes of locomotion lessening the causes of the lesion, external aneurisms are much more rare in Dublin of late years. About 1853 cases were to be heard of at all the meetings of the Surgical Society; and I remember Ellis complaining that that body was being compressed into a mere aneurism club.

The treatment by pressure became the proudest item amongst Irish surgical improvements, and the following outrageous declaration of Syme, in 1849, met with universal contempt:—"I shall deem it my duty to pursue this method (the ligature), though it may not perhaps be the best suited for the lowest capacity of surgical skill. Let every man act according to his powers, but let no one who feels it necessary to choose inferior means throw blame on those who are able to practise a higher exercise of their art." The College was either very oblivious or very forgiving when, in 1867, it conferred the Honorary Fellowship on this defamer.

Bellingham's "Treatise on Diseases of the Heart" is dedicated to his staunch life-long friend, Arthur Jacob, in whose journal the greater part of the matter had been published. As early as 1847 he had pointed out the characteristic symptoms of deposits in the arch of the aorta. It is a well-arranged comprehensive work, each chapter ending with laconic conclusions. I have only time to note one of the many original observations it contains—and it is the following ingenious explanation of protrusion of the eyeballs accompanying increased cardiac force:—The oculo-motor nerve passes between the posterior cerebral and superior cerebellar arteries, and then through the outer wall of the

cavernous sinus, within which proceeds upwards the internal carotid. He supposes that these vessels become over-distended, compress the nerve, and thereby palsy the muscles which in health retract the eye.

I will now conclude with much satisfaction to myself if my humble efforts have caused you to form a high estimate of these good, earnest men. They had reward in the pleasure which work for the spread of science and the relief of fellow-beings always carries with it; and it is generally allowed that they would have been further recompensed by supereminence in professional position and public favour had it not pleased Providence to darken the mind's great inlet in the one, and to ordain the other to an early grave. I will still further rejoice if I have filled every young hearer with the conviction that whether, like Sir A. Carlisle, Carmichael, or Bellingham, his father was of high lineage, or was as lowly as those of Dupuytren, Velpeau, Jobert, or O'Ferrall, the path to excellence in our noble profession lies alone through honest unflagging industry.

RECOGNITION OF PHTHISIS IN ITS EARLIER STAGES.

In addition to the ordinary signs by which pulmonary phthisis may be recognised in its earliest stages without the aid of physical examination of the chest, attention is called in the clinique of the Bellevue Hospital, New York, to the great hyperæmia of the pillars of the fauces presenting itself long before the pulmonary disease manifests itself, and continuing until pus is expectorated. When purulent expectoration is established, decomposed pus irritates the throat, and then the other parts usually become hyperæmic. Intense congestion of the throat, early hoarseness, and vomiting are unfavourable symptoms, and indicate enlargement of the bronchial glands. This vomiting is caused by pressure upon the pneumogastric by the enlarged glands. A large proportion of phthisis cases will tell of having had sore-throat for a number of years previous to the development of any chest symptoms. In the treatment of the sore-throat which may lead to the development of phthisis, the local application of a saturated solution of nitrate of silver in glycerine once in ten days is recommended. An acute inflammation has a natural tendency to get well, whereas a chronic inflammation has no such tendency. The object is to substitute an acute for a chronic inflammation, and the inflammation caused by nitrate of silver is recovered from much quicker than that caused by most of the other caustics. Then use a spray or gargle of common salt-water three or four times a day. Occasionally an antiseptic should be added, and the best is said to be oil of cinnamon, wintergreen, pepper, etc. These oils all contain carbolic acid. Twenty drops of the oil of cinnamon added to a carbolic acid solution destroys the smell and rather increases its efficacy—certainly does not detract from it.—*N. Y. Med. Record*, Sept. 1.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, M.D., F.K.Q.C.P.

Vital Statistics

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, October 6, 1877.

Towns	Population in 1871	Births Registered	Deaths Registered	Deaths from Zymotic Diseases							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhœa	
Dublin, -	314,666	743	554	—	23	10	—	9	21	13	22·9
Belfast, -	182,082	549	318	—	11	7	2	—	18	22	22·8
Cork, -	91,965	169	192	—	1	—	—	—	12	4	27·0
Limerick, -	44,209	114	71	—	—	—	—	—	—	4	21·0
Derry, -	30,884	83	38	—	—	—	—	—	1	—	15·8
Waterford, -	30,626	75	73	—	—	1	—	—	1	1	31·3
Galway, -	19,692	47	22	—	—	—	—	—	2	—	14·5
Sligo, -	17,285	32	28	—	—	—	—	1	2	—	21·0

Remarks.

A very high death-rate prevailed in Waterford and Cork, but elsewhere the mortality was moderate or low. In Dublin it was 26·1 during the second half of the period. The death-rate was 18·4 per 1,000 of the population annually in London, 17·9 in Edinburgh, and 21·7 in Glasgow. Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the death-rate in Dublin was 22·3 per 1,000. Zymotic affections caused 110 deaths in this city, compared with 91 and 105 in the two preceding periods. Croup (12 deaths), measles, scarlatina, and fever showed an increased fatality, while diarrhœa caused only half as many deaths as in the previous four-week period. In Belfast measles, scarlatina, fever, and diarrhœa were prevalent and fatal; and in Cork 12 deaths were returned as due to fever. Of the 21 deaths from fever in Dublin, 4 were caused by typhus, 16 by enteric, and 1 by simple continued fever. Affections of the respiratory organs continued to be very destructive to life, considering the time of year. The total deaths from these affections in Dublin were

80, against an average of 53·5 in the previous 10 years, and included 61 (average=35·9) from bronchitis and 10 (average=10·1) from pneumonia. The epidemic prevalence of measles no doubt contributed to the high mortality from chest affections and from croup, which was further influenced by the low temperature of the present autumn. Small-pox caused 47 deaths in London—the disease showing a slight increase towards the close of the four weeks.

Meteorology.

Abstract of Observations made at Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of September, 1877.

Mean Height of Barometer,	30·094 inches.
Maximal Height of Barometer (on 17th at 9 p.m.),	30·505 „
Minimal Height of Barometer (on 11th at 7 p.m.),	29·454 „
Mean Dry-bulb Temperature,	52·7°
Mean Wet-bulb Temperature,	50·4°
Mean Dew-point Temperature,	48·2°
Mean Elastic Force (Tension) of Aqueous Vapour,	·336 inch.
Mean Humidity,	84·5 per cent.
Highest Temperature in Shade (on 13th),	65·7°
Lowest Temperature in Shade (on 22nd),	38·8°
Lowest Temperature on Grass (Radiation) (on 22nd and 28th),	33·7°
Mean Amount of Cloud,	56·4 per cent.
Rainfall (on 10 days),	1·795 inches.
General Direction of Wind,	N.W. and N.

Remarks.

The first week witnessed a marked improvement in the weather as regards rainfall, although temperature was unusually low for the time of year. A deep depression, which travelled quickly across the South of Ireland and England on the 2nd and 3rd, was almost quite unfelt in Dublin, where, however, a shower of hail fell after midnight of the 3rd and lightning was seen. On the 10th the rainfall was renewed, and continued until Friday, the 14th, when the maximal downpour of the month (viz., ·650 inch) occurred. Very high S.E. to S.W. winds prevailed in this period, during which a series of atmospherical depressions travelled north-eastwards along our western coasts, culminating in the formation of an extensive area of low barometer with central readings of 29·20 ins. off the N.W. coast of Scotland at 8 a.m. of the 14th. In the wake of this disturbance the barometer rose with great rapidity on the 15th, and the wind drew into N.N.W. with fine dry weather. From this day to the close of the month Ireland was under the influence of an anticyclone or area of high barometrical pressure, and the weather was almost rain-

less, although cold at times. The winds were at first light from the northward, and afterwards calms or very gentle and variable airs prevailed, with pleasant days and cold nights. The dews were very heavy by night, but at 3 p.m. on Friday, the 21st, the percentage of relative humidity fell to 60. The barometer rose to 30·505 inches—the highest reading yet recorded in 1877—at 9 p.m. of the 17th. The mean temperature was 2·5° below the average of September of the previous 10 years. Lightning was seen on the 2nd and 14th, and some hail fell on the morning of the 2nd.

PERISCOPE.

Edited by G. F. Duffey, M.D., F.K.Q.C.P.

EXPEDIENTS IN GYNÆCOLOGICAL PRACTICE.

In *The Boston Medical and Surgical Journal* of August 2 is a communication under the above title by Dr. J. R. Chadwick, giving an account of several ingenious and useful devices he employs in his practice, from which we extract the following:—For *intra-uterine applications*, Dr. Chadwick employs the wire stilets from the common English catheter. If the ends of these be roughened with a file they answer the purpose quite as well as the silver instruments with handles. If it be desired to leave a wad of wool, saturated with a styptic, in the cavity of the uterus to check hæmorrhage, this may be readily effected by inserting the wire into a catheter, about three inches of the closed end of which has been cut off; let the wool then be twisted loosely round the protruding end of the wire, soaked in the solution, and introduced; if the catheter be then held firmly and the wire withdrawn the wool will be left in the uterine cavity. The catheter and wire are cheap and efficient substitutes for Sims's whalebone staff and silver canula. For the removal of such wads from the cavity Dr. Sims has devised a modification of a corkscrew, which works well, but may be dispensed with if the operator will simply lay a piece of twine upon the wool alongside the wire, and will by careful manipulation roll the wool round the two at once; the two ends of the twine then being tied together, the wool is passed into the cavity; the next day the patient can extract it by drawing upon the loop of twine which passes through its centre. *Uterometer.*—Many appliances have been attached to the uterine sound to mark the distance to which it enters the uterine cavity. This object may be perfectly attained with the ordinary sound, when introduced through the speculum, by putting a little dab of grease near its end; this will be pushed by the external os out upon the instrument, as it enters, and on withdrawal will indicate the

depth to which the sound has penetrated. Occasionally the grease will partially adhere to the os, but by watching it during the withdrawal of the sound it can easily be seen whether the upper or the lower margin of the grease marks the length of the uterine cavity. *Rubber tubing* of various sizes Dr. Chadwick never fails to carry in his bag. Little pieces of it drawn over knives and trocars protect their edges and points much more efficiently than corks, and do not fall off so readily. Thus, with the knife on a long staff designed for operations in the interior of the womb, the cervix, or, if no speculum be used, the vagina, is protected by passing the blade into a rubber tube through a longitudinal incision at about its middle. The tissues are thus protected from the sharp edge during the manipulations necessary to bring the knife into the proper position; by the free end of the tube, which projects from the vulva, the tubing is then dragged up the staff of the knife, uncovering the blade. *Urethral Dilators.*—A very handy substitute for a Sims's dilator, may be improvised by passing the blades of a dressing-forceps into a piece of tubing through a longitudinal slit two inches from its end. The instrument, thus protected, can be opened very wide without the possibility of injury to the urethra; the free end of the rubber can be held so as to prevent its accidental escape into the bladder. *Sticks of Nitrate of Silver.*—The trouble which is so often caused by the sticks of solid nitrate of silver not fitting holders, and by being broken, may be obviated by pushing them into pieces of tubing of suitable size, and cutting off enough of the latter to uncover their points.

FUNCTIONS OF THE SPLEEN.

Professor Schiff, of Geneva, read a paper on this subject at the recent International Medical Congress. The following are the author's conclusions:—1. *Extirpation of the spleen* has no lasting influence upon the absolute or relative quantity of the white or red blood globules. 2. Soon after the operation there is a considerable augmentation of the white globules, with or without diminution of the red globules. These alterations do not depend upon the absence of the spleen, but only on the operative procedures which necessitate the removal of the organ, and these phenomena are almost identical if the operative procedures are not followed by the removal of the spleen. 3. After removal of the spleen, swellings in the lymphatic glands, or increase in volume of other glands, only follow exceptionally. The so-called supplementary spleens are wanting, even if the animals are allowed to live more than a year and a half, and even if the operation was performed in the first few weeks after birth. 4. The swellings of the mesenteric glands, which are only exceptionally met with in animals whose spleens have been removed, appear to be due to a partial prolonged peritonitis which sometimes is the result of the operation. 5. The spleen appears to increase in volume from the

fourth up to the seventh hour of full stomachic digestion. 6. The spleen during digestion, or rather during stomachic absorption, prepares the ferment, which, entering with the blood into the tissue of the pancreas, transforms in this gland a special (probably albuminoid) substance into *pancreatopepsine* or trypsine, that is to say, into a substance suitable for digesting albuminoid substances. 7. After extirpation of the spleen the pancreatic juice loses its digestive power on albuminoid bodies, while retaining its other digestive properties. The duodenal digestion of albuminoids is no longer distinguished by its energy or rapidity, it is then weak as in the other portions of the small intestine. 8. After ablation of the spleen the substance, destined to form pancreatopepsine, accumulates in great part in the pancreas, and may yet be transformed into pancreatopepsine by the chemical influences which after death accompany the commencement of putrefaction. 9. After the destruction of its nerves the spleen remains flaccid. It does not further increase in size, and becomes atrophic like erectile tissue, in general the vascular nerves of which are paralysed.—*Gaz. Méd. de Paris*, Oct. 6.

NITRATE OF PILOCARPINE.

Mr. Edes calls attention to the very convenient means now accessible for producing the inimitable diaphoretic and sialogogue effects of jaborandi—viz., by the nitrate of its alkaloid, pilocarpine. This may be administered subcutaneously without trouble, and produces within five minutes a distinct moisture of the skin, and in a few minutes more profuse sweating and flow of saliva, lasting for some hours. In a case of Bright's disease, (parenchymatous nephritis of an extreme degree), where the hot-air bath failed to procure diaphoresis, and where jaborandi in infusion was vomited, the subcutaneous injection of a little more than one-fourth of a grain of nitrate of pilocarpine produced abundant sweating and copious flow of saliva. The injection was several times repeated—as much, however, for the great relief afforded by its sialogogue action to the distressing dryness of the mouth as for the mitigation of the general symptoms, although the patient at first expressed himself as feeling much more comfortable after its action. It has been used with similar results in other cases. The therapeutic value of this drug cannot be considered at present as well determined; but such a convenient method of administration ought soon to furnish sufficient data for this purpose. A solution of nitrate of pilocarpine, grs. iiss or 0·16 gramme, aq. destill. ʒi. or 4 grammes, of which six minims or cc. 0·4 may be injected, is of convenient strength.—*Boston Med. and Surg. Jour.*

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XVII.—*Notes on Health-resorts in Switzerland.* By PHILIP CRAMPTON SMYLY, M.D., Univ. Dub.; Vice-President, R.C.S.I.; Surgeon-in-Ordinary to his Grace the Duke of Marlborough; Surgeon to the Meath Hospital, and to the Hospital for Diseases of the Throat and Ear.

"Preserving the health by too strict a regimen is a wearisome malady."
LA ROCHEFOUCAULD.

I.—THE UPPER ENGADINE.

FROM the earliest times Switzerland has been—what it is the fashion now to call—a "health-resort."

The old Romans, as the modern Germans, took their baths and drank their waters in a quiet, sober way. The Englishman's mode of seeking health is almost peculiar to himself. It is well described by Ruskin:—"The Alps themselves, which your own poets used to love so reverently, you look upon as soaped poles in a bear-garden, which you set yourselves to climb, and slide down with 'shrieks of delight.'"

If a traveller mentions in conversation that he has been in Switzerland, an Englishman at once asks, "What have you done?" and with scant modesty talks of "peaks and passes." A German, on the contrary, asks, "Where have you made your cure, and how soon after your return home 'do you allow yourself to eat salad?'"

It is a true saying that different men take their pleasures in

different ways. It is no less true that health may also be sought in different ways.

With the search for health on the points of the high mountains, this paper has nothing to do, further than to notice that the overworked lawyer or physician, who takes his month in Switzerland, will find anything but health if he works like a member of the Alpine club. He will find to his cost that Alpine work must be learned like any other game of skill, and that

> "The beginning must be
> At the A B C,"

and not with the poetry of the Alps. He will return to his work wearied in body and mind. It may not be out of place to quote Ruskin again:—"The real beauty of the Alps is to be seen, and seen only, where all may see it—the child, the cripple, and the man of gray hairs." Though this may not satisfy the man who has tasted of the pleasures of the spirit of the mountains, it may afford consolation to one who is unable or unwilling to risk his neck with a rope and an ice-axe.

It is strange, but no less true, that many invalids are sent to Switzerland every year without one word of advice—where to go, or what to do—or with advice so absurdly wrong that they receive a positive injury instead of benefit. What would be thought of the medical man who said to his patient, "Turn into a chemist's shop, and try what suits your fancy?" And yet it is said every day with regard to Switzerland. In Switzerland every kind of climate can be found; every kind of mineral water, and every kind of feeding—from the very best in Europe to the very worst.

For some years the Engadine has been very fully appreciated by English physicians—by the Germans for a much longer time.

The journey to the Engadine used to be a very formidable undertaking; it can now be done with comparative ease and comfort. For patients who are not well enough to enjoy a visit to Paris, &c., we advise the route by Ostend, *viâ* Luxemburg and Strassburg, to Basle. On this line sleeping cars are provided, and the whole journey can be made without fatigue; the beds are clean, good, and the price very moderate. Then from Basle, by Zurich, to Chur (Coire). From Chur the Engadine may be approached by the Julier Pass, which follows the old Roman road, or by the Albula. On the Julier route the traveller has a choice, either by Thusis and the very beautiful Schyn Pass to Tiefenkasten, or direct by Churwalden. For those who wish to make a detour, the

road by Landquart, through the Prättigau Davos, over the Fluëla Pass, is very good and pleasant, and by the Landwasserstrasse, by Alvenu. The approach may also be made from the Tyrol, by Nauders, or from Meran, through the Münsterthal. Excellent carriages, with one or two horses, and at a fixed tax, can be had on all the routes, besides well-appointed diligences. It is wise to telegraph, on entering Switzerland, both for rooms and places in the diligences, as the rule in both hotels and diligences is—first come first served.

The Engadine is a valley fifty-seven miles long, and about a mile broad. Dr. Ludwig says:—"There is not another valley—so high above the sea, so sunny, so level—of such breadth and extent, to be found in the whole of Europe."[a]

Nearly all the villages are placed on the sunny side of the valley, with the exception of Sils Maria, at the entrance of the Fex valley, and the Camogasc.

St. Moritz, as a health-resort, is the most important. The rocky elevation on which it stands divides the upper Engadine into two parts. The lower part may be said to begin with the village of Scaufs; the valley beyond is more characteristic of the lower Engadine. Scaufs is a well-built and rich village; next to it is Zutz (5,548 feet), and Madulein (5,515). Here the Escheathal opens. Quarter of an hour further on we see the windings of the Albula road above the village of Ponte (5,548), immediately opposite the village of Camogasc, at the opening of a valley of the same name. Bevers (5,610) lies at the opening of the Beversthal, one of the most interesting valleys to the botanist and geologist. Between Bevers and Samaden a road leads to the beautiful village of Pontresina (5,915), with its magnificent mass of mountains (the Bernina), and its glacier (Rosegg). Samaden (5,600) is the chief village, and has 800 inhabitants; large hotels, well-built private houses, and good shops. Samaden is very convenient for those who like extra comfort, as it is within easy drive of St. Moritz, and the feeding is more English. From Samaden there is a fine view of the valley towards Pontresina, with the Piz Languard above it. Passing two small villages, Celerina and Cresta, we arrive, by a steep ascent through a pine wood, at the St. Moritzer Kulm (6,089). The Kulm Hotel, well managed by the proprietor and his sons, the Messrs. Badruth, is to our left; it stands high above the beautiful green and blue lake, and overlooks the village

[a] Das Ober-Engadin. (Gekronte Preisschrift), 1877.

and the lower part of the valley. Here, on ground evidently reclaimed from or left by the lake, are several first-rate hotels, and the Kurhaus, with the springs and baths (5,804), 294 feet below the Kulm Hotel. At the village of St. Moritz the road divides—one keeps the side of the mountain, and leads to the well-situated village of Camphir (6,000), completely sheltered from the north-east wind. Many can live here who cannot live at St. Moritz. The hotels are excellent, and conveniently placed for those invalids who require the iron waters.

Silvaplana (5,958), on its beautiful lake, is one of the most delightful residences in the Engadine. Here the Julier Pass enters the valley, almost opposite to the village of Surlei, some years since destroyed by a glacier stream.

The road passes along the edge of the lake, and then by the banks of the river Inn to Sils Baseglia and Sils Maria. The first lies on the side of the lake, and consists of only a few houses; the other lies at the opening of the celebrated Fexthal, and has good hotels. The road then passes on to the Maloja. Here a very good inn stands at the head of the Pass, on a rock almost perpendicular. The visitor, at a few steps from the hotel, can look down more than a thousand feet.

What are the advantages of this wonderful valley? They may be shortly described—

1. Glacier air, without sharp contrasts of hot valleys.
2. Intense dryness.
3. Iron waters and baths.

1. The great extent of the valley, without any considerable depression, enables the patient to avoid descending into any great heat. In fact, long and pleasant drives can be taken without ever descending below five thousand feet above the sea-level, and many drives can be taken at a much higher elevation. The climate, during the season, is almost always tolerable; and the cool nights, even during the hottest weather, are of incalculable advantage to many delicate persons who are liable to night perspirations, and suffer from want of sleep in hot weather.

Warm clothing, especially under-clothing, is absolutely necessary; great coats and fur cloak should always be at hand, for although, owing to the clearness of the air, the direct rays of the sun produce very great heat, in the shade it is always chilly, and the evenings are very cold. With moderate prudence, however,

cold is rarely taken, as even in the mid-day sun perspiration is difficult to produce.

In some seasons heavy snow has fallen in July and August; this always precedes very fine weather. There is a saying in the Engadine, "It is too cold for snow."

Glacier air has been fully appreciated and praised by many authors; but its bracing properties must be felt to be realised; no description can give an idea of the exhileration produced by inhaling it. At Pontresina it may be enjoyed in its highest perfection of comfort. Every modern improvement in hotel management is at the disposal of the visitor, and in the season an endless succession of the best society from England, Ireland, Germany, and Italy. The fresh breezes from the great Rosegg glacier may be taken full advantage of without leaving the pleasant and sunny gardens of the hotels. Health and vigour can be attained here without either the fatigue or hardships necessary to obtain an equal amount of bracing in other parts of Switzerland. For those who need more bracing, and can put up with moderate comfort, will find the Bernina Hospice (7,658) bracing enough, and to spare. It stands high above two beautiful and curious lakes—one black, the other white; one is spring water, the other is filled from the glacier.

2. "The ground on which the villages stand is mostly porous rubble, resting on shelving rocks which do not allow any lodgment of water."[a] The ground is, on this account, perfectly dry, and in consequence, even when the sun is strong, there is little or no evaporation. "The rapidity with which the morning dew dries off, the way in which the hay hardens—grass cut in the morning, in a few hours rustles as it is raked together—the method of drying meat in the open air instead of smoking it, and the dryness of the roads, even after heavy rain, are facts sufficient to establish beyond doubt the dryness of the Engadine."[b] And lastly, the wrought-iron work, "perhaps the most surprising feature in many Grison's villages,"[c] which often shows great artistic skill, and which contrasts strangely with the otherwise homely exterior of the houses. Some of this iron work is full two hundred years old, and its present state of preservation is a noteworthy proof of the extreme dryness of the air. The strong wind which blows for several hours every day is a curious characteristic of this valley. It is

[a] Dr. Ludwig.

[b] Dr. A. Huseman. Heilquellen und Baeder von St. Moritz.

[c] Hon. Lionel Tollemache. The Upper Engadine. Fortnightly Review, p. 345. March, 1876.

caused by the heated air from the plains rising, and the hotter the lowlands become, so much stronger is this wind; as the heat declines towards the evening, the wind falls.

3. Should the patient need the iron waters combined with bracing air, the most suitable for English-speaking visitors is the Kulm Hotel at St. Moritz. The iron springs are within an easy drive or walk, and the society is more English. For those who understand the Germans the Kurhaus is a most comfortable house, but until the Englishman learns to understand a German's dread of a draught, and the German learns that an Englishman cannot breathe in a close room, much less eat in it—it is better for them not to try to live together. The Kurhaus has many advantages, being so near the waters and baths—beautiful gardens to walk in, and a covered place with shops in case of rain, a very fine dining-room in which concerts and balls are given during the season, and a very good band. There are several very first-class hotels—Hotel du Lac, Hotel Victoria, &c., and innumerable lodging-houses, which are all more than full during the season.

Less bracing, but still bracing enough for a very large proportion of seekers after health, is Samaden at one side of St. Moritz, and Camphir and Silvaplana at the other, and much benefit may be obtained by moving from one place to another if well advised. Excellent physicians are resident in all the principal villages.

The cases suitable for the health-giving Engadine are very numerous—in fact, nearly all chronic diseases which the unaided constitution has not strength to eliminate.

The following list of indications and of contra-indications given by Dr. Ludwig in his prize essay, "Das Ober-Engadin," 1877, p. 129, may be found useful by the medical man at home:—

I.—INDICATIONS.

1. All nervous diseases, sequences of mental shocks, over-exertion, and severe illness.
2. Sequelæ of severe illnesses, chiefly—
   (*a*) from malaria.
   (*b*) „ typhus, typhoid, scarlatina, nephritis, &c.
   (*c*) „ acute lobular pneumonia.
   (*d*) „ long-continued suppuration.
3. Constitutional diseases—
   (*a*) Scrofula.
   (*b*) The early stages of lung-disease.
   (*c*) Chlorosis and anæmia.

4. Local diseases—
   (*a*) Chronic bronchitis.
   (*b*) Chronic catarrh of the stomach.
   (*c*) Ulceration of the stomach.
   (*d*) Varicose ulcers of the legs and hæmorrhoids.

II.—CONTRA-INDICATIONS.

1. Heart disease, fatty degeneration, dilatation and atrophy of the left ventricle, and valvular insufficiency.
2. Any tendency to apoplexy, aneurism and atheroma.
3. Emphysema when considerable, or when complicated with bronchitis.
4. Tuberculosis of the larynx, or of the abdominal viscera.
5. Convalescence from dysentery.
6. Any tendency to acute rheumatism.
7. Any tendency to acute inflammation of the tonsils, throat, or wind-pipe.

To this may be added any tendency to constipation One of the most troublesome effects of the climate is the obstinate constipation it produces in nearly every case.

Age is a very important consideration, and it has been remarked that the younger the patient is, the more certain is the recovery, and from the above list it may be seen that there are special dangers for those advanced in life. However, Dr. Ludwig remarks that "every summer brings back pale and withered old people, whose faces have been seen for years, and who declare that they are not so well in any other air, and that residence in the Engadine frees them from one or another nervous disorder."

The time of year is most important. What is known as the season is from the end of the first week in July to the end of August. Then the weather breaks, and a stampede of health-seekers takes place. For those who have courage to remain over this first break, which generally only lasts a few days, some glorious cold bracing weather may be enjoyed until the end of September, or even on into October. Some speak with rapture of the winters; the almost perfect stillness, the complete dryness, the strong sun, clouds almost unknown, and five months' frost, with rarely anything like a thaw, no dust, and excellent skating and sledging, and every comfort in the way of hotel accommodation. However, every one who can flies from the early spring, and this is easily done, for an excellent road, passable in all weathers, leads over the Maloja Pass into Italy

The climate of the Engadine may be described in two words—exciting, stimulating—or, we say, the climate of the upper Engadine accelerates and increases change of tissue, assists nutrition of the body, and strengthens the nervous system.

"The practical observations agree entirely with the theoretic statement. For, in most cases, the appetite increases, the weight of the body increases when below the normal standard; and the reverse takes place when there is too much fat. The physical strength increases, and the mental powers are improved."[a] Further the same excellent writer resumes:—"The high air (hohen Klima) in most cases has less to say to the cure than the complete change of air, and this on the following grounds—namely, that the most marked improvement always takes place at the beginning of the residence in this 'high air.' That the greatest improvement in appetite takes place in the first eight days. That consumptives gain in weight more in the first weeks than they do in as many weeks afterwards, and old nervous complaints make the most progress at the beginning, and so on. And further, that many patients after their residence and marked improvement during a longer stay come to a stand still, and then on returning home continue to improve, and at last become quite well. I believe that this further improvement is due to the further change of air, and not to the 'further working' (Nachwirkung) of the climate."

It is needless to say anything here as to the iron waters of St. Moritz. As iron waters they are excellent and most easily digested, and the baths are good; and, being very much charged with carbonic acid, they are agreeable as well as strengthening. As to the special uses the waters differ in no way from the use of iron in any other form. Their great advantage over all others is, they can be taken by patients who cannot or will not endure the great heat of most of the other chalybeate health-resorts.

One essential, above and beyond all other necessities at any health-resort, is to have a pleasant companion. Many invalids lose half the benefit and all the pleasure by having a discontented and growling friend, one who knows no good away from home, who sighs all day for beef and mutton, who cannot sleep on spring beds, and who wonders how soon the time for getting home may come.

Lastly, one word about getting home. Let the motto be *Festina Lente*. Do not hurry by long and rapid journeys. Do not delay in the towns sight-seeing.

[a] Dr. Ludwig.

ART. XVIII.—*Abstract of 330 Cases of Phthisis; with Observations on Symptoms and Treatment.* By THOMAS HAYDEN, F.C.P.; Physician to the Mater Misericordiæ Hospital.[a]

I MAY state at the outset that I recognise genetically only three forms of phthisis—namely, the tubercular, the broncho-pneumonic or caseous, and the cirrhotic or fibroid; so-called syphilitic phthisis, though I would not be understood as denying it, has not as yet made good its claim to be regarded as a distinct species. "Hæmorrhagic" phthisis is only a form of tubercular phthisis characterised by early and copious hæmorrhage. So-called millers', miners', flax-dressers', and iron-workers' phthisis are only modified forms of fibroid phthisis.

In this paper, which aims only at presenting a clinical conspectus of the disease, I do not propose entering on the debated question whether tuberculosis is ever primary, or rather whether it is not always the product of infective absorption from a strumous or an inflammatory deposit.[b] In reference to this portion of the subject I shall only observe that I believe primary tuberculosis of the lungs is not only possible, but of very frequent occurrence. Young persons in apparently good health, with no history of previous disease of a character suggested by the infective theory, but inheriting a family proclivity to phthisis, whether this be interpreted as a specific diathesis or as a mere vulnerability of constitution, pass almost imperceptibly, and without any assignable cause, into phthisis. Again, a "neglected cold," or a succession of trivial colds, is credited with starting the disease, and occasionally with justice; but assuredly in many instances the disease has started "the cold," and is itself the first link of the series. The apices of the lungs are, *par excellence*, the seat of this form of phthisis. The broncho-pneumonic form *does* follow a severe but neglected cold, and is in many cases strictly preventable. It is characterised in its early stages by limitation to one lung, engaging primarily the base and progressing upwards. This form is much less common than the first, but next to it in point of frequency. The cirrhotic form of phthisis is the least frequent; it is the product of chronic interstitial inflammation of the lung, remarkably slow in its progress, and usually for a long time confined to one side.

[a] Read at a Meeting of the Medical Society of the King and Queen's College of Physicians, Nov. 14, 1877. [For discussion on this paper, see p. 550.]

[b] *Vide* Dr. Foot's admirable Lectures on Tuberculosis in the July and August numbers of this Journal.

With most writers on phthisis I recognise three stages of the disease—deposition, softening, and excavation. Having made these few general remarks by way of explanation, I shall now proceed to the special subject of my paper.

For the last twelve years I have noted incidentally, as time permitted, many, perhaps one-fourth, of the cases of phthisis which came under my notice. I have thus collected a total of 330 cases. These have been recorded under ten headings—viz., "Name," "Age," "Occupation," "Duration of Illness," "Lung Affected," "Stage of Disease," "Family Health," "Complexion," "Hæmoptysis," and "General Observations."

Sex.—Males, 209; females, 112; sex not stated, 9; total, 330.

Age, 7 to 75.

Occupation.—Housekeepers, 25; Labourers, 26; Stitchers, 11; Car-drivers, 7; Domestic Servants, 17; Porters, 13; Tailors, 6; Policemen, 4; Carpenters, 4; Shoemakers, 5; Merchant Clerks, 12; Farmers, 7; Grocers, 6; Law Clerks, 3; Blacksmiths, 5; Bricklayers, 4; Brassfounders, 4; Students, 7; Printers, 6; Ladies, 4; Army Pensioners, 6; Tobacconists, 3; Drapers, 10; Orphans, 3; Shopkeepers, 3; Bakers, 2; Plasterers, 1; Confectioners, 4; Religious, 2; Messengers, 2; Iron-workers, 3; Soldiers, 3; Bonnet Makers, 1; Sawyers, 1; Wood Carvers, 1; Waiters, 2; Engine Fitters, 2; Laundresses, 2; Slaters, 3; Basket Makers, 1; Commercial Travellers, 2; Glass Blower, 1; Gentleman, 1; Stone Masons, 2; Cabinet Makers, 1; Coach Builders, 2; Apothecary's Assistants, 1; Upholsterers, 2; Clock Makers, 1; Cattle Drover, 1; Millers, 1; Coal-heavers, 1; Cotton Workers, 1; Mill Hands, 2; Harness Makers, 1; Medical Men, 2; House Painters, 1; Grooms, 2; Butchers, 2; Millstone Grinders, 1; Lamp Lighters, 1; Stage Players, 1; Collectors, 1; Hairdressers, 1; Governesses, 1; Coachmen, 1; Pig Drovers, 1; Publican's Assistants, 1; Sailors, 1; no employment, 11.

Both Lungs Affected, 194 = 58·78 per cent.; both equally, 21 = 10·28 per cent.; right more affected, 79 = 40·72 per cent.; left more affected, 94 = 48·4 per cent.

One Lung Affected, 126—Right only, 65 = 19·7 per cent.; left only, 61 = 18·48 per cent.

Stage of Disease.—First stage, 45 = 13·63 per cent.; second stage, 146 = 42·42 per cent.; third stage, 93 = 28·26 per cent.

Family Health.—Good, 205 = 70·93 per cent.; phthisical, 78 = 27·0 per cent.; not stated, 41 = 12·42 per cent.

Complexion.—Dark, 179 = 56·46 per cent.; fair, 131 = 41·32 per cent.; not stated, 13 = 3·93 per cent.

Hæmoptysis, 188 = 57·49 per cent.; once, 60 = 31·95 per cent.; more than once, 128 = 62·75 per cent.

No Hæmoptysis, 129 = 39·9 per cent.; not stated, 3 = 0·9 per cent.

General Observations.—Fingers clubbed, 124 = 66·66 per cent.; fingers not clubbed, 36 = 19·35 per cent.; not stated, 144 = 43·63 per cent.

Femoral Phlebitis occurred in 3 cases—viz., in 2 on the left side and 1 on the right. The chest disease in all was in the first or second stage. Age of patients, 22, 27, and 40 years respectively.

Laryngeal Ulceration in 2, the lung affection being in the second and third stage respectively. Age, 27 and 45.

Diabetes Mell. in 2, which were respectively in the second and third stage of phthisis. Age, 28 and 41.

Valvular Disease of the Heart in 1 case only; it was both mitral and aortic. Age, 25.

Fistula in Ano in 3. All were in the second stage of phthisis, and in 1 albuminuria also existed. Age, 25, 26, and 42.

Amenorrhœa in 15. In 7 of these it occurred after the first symptoms of phthisis (4 being in the second stage and 2 in the third); in 2 it was coeval with (1 in the second stage and 1 in the third), and in 4 it anticipated them (3 being in the third stage and 1 in the second). In 2 (age, 17 and 18) menstruation never occurred. Age varied from 17 to 43.

Menstruation was regular in 5 (age, 17 to 44), of whom 3 were in the second stage and 2 in the third.

Menorrhagia existed in 1 case; age 25. Stage of disease, the third.

The Patients were fat and free from Hectic in 6 cases (second stage 3, third stage 3); age, 19 to 45. One of these, a man, aged 19, in the third stage, grew fat and lost his cough; and another, a female, aged 25, and also in the third stage, became fat and "regular."

No Cough or Expectoration existed in 3 cases (all in the first or second stage). Age, 18 to 42.

Excavation, 93 = 28·26 per cent.; within six months, 34 = 41·46 per cent.; within twenty-four months, 44 = 53·65 per cent.; after twenty-four months, 4 = 4·87 per cent.; period not stated, 11 = 11·82 per cent.

The preponderance of males in the proportion of nearly 2:1 is noteworthy, and I believe fairly represents the relative proportion in which phthisis affects the working classes, from which seven-eighths of these cases have been drawn. I now proceed to tabulate the cases according to age (see next page).

I would beg to make a few general remarks on these tables. As might be expected from the chronicity and slow progress of the disease after forty-five years, both lungs were affected in a larger proportion of cases at that period of life than at any other, whilst both were least frequently affected, relatively to number, between the ages of fifteen and twenty-five years. Where one lung only was affected, the right maintains a preponderance at all periods except the third and the last. Hæmoptysis was most frequent between the ages of twenty-five and thirty-five years, and at all periods it occurred more than once in the proportion of about 2:1 of the cases in which it was exhibited. The proportion of phthisicals in whom hæmoptysis did *not* occur at any time was more than two-thirds; Andral sets it down at one-sixth. Clubbing of the fingers was presented in a proportion varying from one-third to nearly one-half of the cases.

Table.

Sex	Average Age	Both Lungs Affected	One Lung only	Family Health	Complexion	Hæmoptysis	Fingers Clubbed	Excavation
M. 2 F. 1	Yrs. M. 9 F. 8½	2=66·66 per cent. Right more 1 Both equally 1	R. 1	Good 2 Not stated 1	Fair 3	—	1 Not stated 2	2=66·66 per cent. 6 months 0 24 „ 1 48 „ 1
M. 4 F. 5	M. 14 F. 13	5=55·5 per cent. Right more 1 Left more 3 Both equally 1	R. 3 L. 1	Good 4 Phthisical 3 Not stated 2	Dark 4 Fair 4 Not stated 1	5=55·55 per cent. Once 2 Oftener 3 None 4	4 Not clubbed 1 Not stated 4	4=44·4 per cent. 6 months 1 24 „ 3
M. 79 F. 46	M. 21½ F. 20½	68=53·96 per cent. Right more 26 Left more 37 Both equally 5	R. 23 L. 32	Good 75 Phthisical 35 Not stated 16	Dark 70 Fair 51 Not stated 5	72=57·14 per cent. Once 26 Oftener 46 None 54	37 Not 16 Not stated 54	33=26·19 per cent. 6 months 14 24 „ 17
M. 74 F. 37	M. 30⅓ F. 30	71=63·96 per cent. Right more 27 Left more 39 Both equally 5	R. 27 L. 13	Good 67 Phthisical 31 Not stated 14	Dark 63 Fair 46 Not stated 2	70=63·0 per cent. Once 21 Oftener 49 None 41	53 Not clubbed 14 Not stated 44	31=27·92 per cent. 6 months 11 24 „ 13 72 „ 5 Not stated 2
M. 34 F. 14	M. 36¾ F. 41½	30=62·5 per cent. Right more 15 Left more 10 Both equally 5	R. 10 L. 9	Good 39 Phthisical 6 Not stated 3	Dark 27 Fair 19 Not stated 2	28=58·33 per cent. Once 8 Oftener 20 None 18 Not stated 2	20 Not clubbed 2 Not stated 26	14=29·16 per cent. 6 months 7 24 „ 7
M. 17 F. 8 Sex not given 1	M. 52 F. 53¾	18=69·23 per cent. Right more 9 Left more 5 Both equally 4	R. 1 L. 6	Good 18 Phthisical 3 Not stated 5	Dark 15 Fair 8 Not stated 3	13=50 per cent. Once 3 Oftener 10 None 12 Not stated 1	9 Not clubbed 3 Not stated 14	9=34·61 per cent. 6 months 1 24 „ 4 Over 24 3 Not stated 1

Excavation was most common under 15 years, and was associated with illness of less than 6 months' duration in the proportion of somewhat less than one-third of all the cases in which it was exhibited.

Of the symptoms and physical signs of phthisis I shall discuss those only which seem to me to possess special diagnostic value. The special symptoms most significant of the first stage are comparative immobility of the infra-clavicular region, with retrocession or sinking of the supra-clavicular fossa during a full inspiration; and the signs most suggestive of deposition I believe to be feeble or interrupted respiratory murmur, prolonged expiration, and inordinate transmission of the sounds of the heart. The relative breath-movement of the infra-clavicular regions may be best observed from one side, the patient in the sitting posture and breathing fully, whilst the physician stands behind either shoulder and scans the chest obliquely downwards. Increased vocal resonance and a flat percussion note *may* likewise exist in this stage. A subclavian arterial murmur has been in many cases detected in the stage of deposition. This phenomenon was first noted by Stokes in 1835, who attributes it to a threefold cause—namely, retrocession of the chest wall, consolidation of the apex, and arterial irritation.

Ruehle (in Ziemssen's "Cyclopædia," Vol. V.) erroneously assigns the credit of the discovery of this sign to Friedrich and Gerhardt, who had observed it shortly before the date of his publication in 1875. He remarks:—"When a systolic murmur, which is heard in the subclavian region or at the outer half of the supra-clavicular fossa, is detected only during expiration, or becomes louder at that time, I regard it as evidence that the pleural surfaces of the apex of the lung at that side have become adherent." Ruehle would thus seem to regard this sign as evidence of pleural adhesion only. Without being aware of its having been previously observed by anybody, I noted an example of it in 1870, since which date I have added at least a dozen more, and I interpret it, not as Ruehle does, as indicating pleural adhesion and traction upon the artery, but with Dr. Stokes—when limited to one side, coinciding with inspiration or expiration (it most frequently coincides with expiration) only, and associated with any other evidence suggestive of deposition in the apex of the corresponding lung—as in the highest degree diagnostic of the first stage of phthisis. I further believe that it indicates a limited deposition in the *anterior* portion of the apex, and that it is due to a passing pressure of the solidified lung-substance upon the artery.

The second stage is indicated by coarse and resonant crepitant râle, limited to the apex of one or both lungs, and associated with flattening, percussion-dulness, and muco-purulent expectoration. The differential diagnosis from bronchitic râle rests mainly on the sharp and resonant quality of the crackle in the case of progressive softening, and on the localisation of this sign. I cannot admit *local* bronchitis in the absence of a local irritant.

The existence of cavity is positively indicated only by metallic phenomena and *gargouillement*. The *decubitus* is eminently suggestive in this stage. When cavity exists in either lung, the patient in almost every instance lies on the back or on the opposite side, not by preference, but of necessity; the attempt to lie on the affected side being immediately followed by urgent cough, alleviated only by change of position. I have noted the decubitus in thirteen instances only; in ten of these cases, which were all in the third stage, the patients lay on the unaffected or the less affected side, and could not lie on the affected side. In one instance the patient lay on the affected side, in one on the more affected side, and in one, in which both lungs were equally affected, the decubitus was indifferent.

Pneumonic phthisis was noted in eight cases. It was confined to or commenced on the right side in three, and on the left in five instances. Subclavian murmur existed in four cases—all were examples of the disease in the first stage, and in all the murmur coincided with the *only* or the *more* affected side.

In regard to treatment, I shall make very few remarks. I cannot subscribe the *dictum* of Laennec:—"The tubercular affection, like cancer, is absolutely incurable, inasmuch as Nature's efforts towards effecting a cure are injurious, and those of art are useless." Notwithstanding this oracular declaration, Laennec has admitted the curability of phthisis in the third stage, and given several examples of cicatrised tubercular cavities. Many similar examples have been since published—Dr. Quain and Dr. Hughes Bennett have recorded several such. I have myself met with a few—one of these, a young lady of seventeen, and a member of a family of whom several had died of phthisis, had a distinctly pronounced cavity in the apex of her left lung ten years ago. She went down to the South of Ireland, as I supposed, to die. Some years later her health was comparatively good; and when last I saw her, a few months ago, she had become a robust matron, enjoying the most perfect health.

The disease is, at an earlier stage, even more curable by encapsulation and cretification of the deposit. Of this I have witnessed several examples. These boxes exhibit indubitable evidence of cured phthisis in four instances; they contain cretified tubercle expectorated by phthisicals in different stages of the disease, and two of them are perfect casts of an air-sac and its alveoli. In the fifth is presented for comparison a cretaceous particle discharged by a gentleman from a crypt of one of his tonsils, causing him much alarm.

Suitable change of climate is, *par excellence*, the remedy for phthisis. A long journey by sea is also of the highest value, and in many instances it has been known to effect a complete cure. Of medicines, cod-liver oil is the best, and of aliments, fats of every kind. Where cod-liver oil cannot be borne (and there are many such cases) I have given arsenic after food in small doses (3 to 5 ♏.), alone or combined with one of the ferruginous syrups, or with Parrish's compound syrup of phosphates, after food, as suggested by the general condition and the special symptoms. I have been induced to make trial of arsenic, in cases especially characterised by great and rapid wasting, from the remarkable results recorded of "arsenic-eating" in Styria, and I am satisfied it is of great value so given. Rich cream is likewise a good substitute for cod-oil. Dover's powder, given in 5 gr. doses once or twice in the course of the night, is the best remedy for night-sweats.

ART. XIX.—*Herniotomy, chiefly in the County Down Infirmary.* By JOHN K. MACONCHY, M.B., F.R.C.S.I.; Surgeon, County Down Infirmary.

IN the following paper I propose giving an account of all the cases in which I have operated for strangulated hernia, with the failures, accidents, and successes, in the order in which they occurred in my practice during the last eighteen years.

This being an operation that any surgeon may be suddenly called on to perform, particularly in a country practice—possibly with little skilled assistance and unpropitious surroundings, and one in which the treatment before operation has a most important bearing on the probabilities of success—I am not without hope that a short account of my cases, with a few remarks in which I shall attempt to convey what I believe they have taught myself, may be of interest to some of the readers of the Journal.

TABLE.

No.	Name	Occupation	Class and Duration of Hernia	Operation	Result	Observations
1	Samuel C., aged 75, Aug., 1859	Farmer	Right oblique inguinal entero-epiplocele; symptoms of strangulation of six or seven days' standing.	Sac opened; bowel being gangrenous, not returned.	D. 36 hours	This operation was undertaken with scarcely any hope of success.
2	Mrs. F., aged 30	None	Left femoral enterocele; three days' irreducible, symptoms not acute.	Sac not opened; after the division of Gimbernat's ligament reduction was easy.	R. about 2 weeks	After-treatment, an opiate shortly after the operation, a chamomile enema three days after. (See remarks below.)
3	Mary M., aged 52	Labourer's wife	Right femoral enterocele; five days' symptoms of strangulation.	Sac opened; bowel very much discoloured; both layers of peritoneum studded with lymph.	D. over 2 days	Opium treatment; no motion from bowels; death from peritonitis.
4	Miss J., aged 50	Farmer's sister	Right femoral enterocele small; three days' symptoms; vomiting excessive.	Sac opened; only part of the calibre of intestine protruded.	R. 5 weeks	This case resulted in an artificial anus, which rapidly closed. (See remarks below.)
5	Jane M., aged 70	Labourer's wife	Left femoral enterocele; symptoms of two days' standing, not very acute.	Sac not opened; hernia returned easily without doing so.	R. 6 weeks	The reason of the delay was the occurrence of anthrax over the crest of the ilium; left the Infirmary quite well.
6	John J., aged 70	Labourer	Left oblique inguinal entero-epiplocele; symptoms of either four or five days' standing.	Sac opened; bowel not returned, being gangrenous.	D. under 48 hours	Patient did not rally after operation; peritonitis.
7	Eliza M., aged 56	Servant	Right femoral enterocele; symptoms about forty-eight hours.	Sac not opened; hernia easily returned; operation perfectly bloodless.	R. 12 days	An opiate after operation, no other medicine; bowels moved on fifth day.
8	Mr. S., aged 45	Farmer	Right oblique inguinal enterocele; thirty-six hours' symptoms at most.	Sac not opened; hernia easily returned.	R. quickly	(See below.)
9	Eliza W., aged 69	Servant	Right femoral enterocele; four days' irreducible, not very acute symptoms.	Sac opened; gentle pressure not succeeding after the division of Gimbernat's ligament.	R. 23 days	No trouble in the after-treatment of hernia; a suppurating lymphatic caused delay.

10	Frank M., aged 40	Labourer -	Right direct inguinal enterocele; symptoms acute, thirty-six hours about.	Sac opened; only part of the calibre of intestine protruded.	R. 33 days	This case resulted in artificial anus. (See remarks below.)
11	James S., aged 71	Labourer -	Left oblique inguinal entero-epiplocele; symptoms of certainly five days' standing.	Sac opened; intestine not returned, being gangrenous.	D. 24 hours	The smell on opening the sac was very bad, but I could not find any burst of the intestine.
12	Jane S., aged 45	Servant -	Right inguinal enterocele; symptoms of about thirty-six hours' standing.	Sac not opened; hernia easily returned.	D. 75 days	A fortnight after the operation this patient seemed to have completely recovered, but subsequently died of iliac abscess.
13	Eliza H., aged 48	Workwoman	Right femoral enterocele; symptoms of twenty-four hours' standing.	Sac not opened; reduction easy.	R. 28 days	Recovery delayed by suppuration of a lymphatic gland.
14	John M'N., aged 11	Schoolboy -	Right femoral enterocele; symptoms of about thirty hours.	Sac not opened; reduction easy.	R. 34 days	Diagnosis difficult. (See remarks below.)
15	Mrs. M'C., aged 42	Shopkeeper's wife	Right femoral enterocele; five or six days' symptoms of strangulation.	Sac opened; several inches of dark intestine; symptoms acute.	D. 2 days	(See remarks.)
16	Pat G., aged 58	Ferry-man	Right oblique inguinal enterocele; symptoms of eight hours' standing.	Sac not opened; reduction easy.	R. 10 days	This patient had suffered for years from mitral valve disease; got no chloroform.
17	Bella C., aged 50	Farmer's sister	Right femoral entero-epiplocele, size of a large lemon; symptoms of five days' standing.	Sac opened; intestine much discoloured; lymph on the peritoneum.	D. 2 days	Had vomiting for five days, without having any idea of the gravity of the case; death from peritonitis.
18	Agnes E., aged 60 6th Aug., '77	Servant -	Right femoral enterocele; for some days the hernia was irreducible.	Sac opened; intestine of a sienna brown.	R. 47 days	(See remarks.)

Sac opened, . . . 10 { Recoveries 4; Deaths 6.

Sac not opened, . . 8 { Recoveries 7; Death 1.

Inguinal, . . . 7 { Males 6; Recoveries 3; Deaths 3; Female 1; Death 1.

Femoral, . . . 11 { Male 1; Recovery 1; Females 10; Recoveries 7; Deaths 3

In order to avoid tediousness, I shall beg the reader to assume that in all these cases the usual bath, enemata, &c., were given, and at least a gentle taxis resorted to before operation.

Every case got chloroform, except No. 16; the omission is accounted for in the column of observations.

Where necessary, I have given a more extended account of some of the cases immediately after the tabular statement.

REMARKS.

Case No. 2.—During the performance of this operation I was assisted (?) by a practitioner of the old school, who kept constantly assuring me that I was ruining the case, that no hernia could be reduced by such an operation—my offence being that I had made only a simple incision instead of a ⊤ for a small hernia. This, during my first operation in a private family—and, indeed, my first herniotomy with any chance of success—was hardly help.

Cases 4 and 10.—Although one was a femoral and the other a direct inguinal, these were similar in many respects; in both there was only part of the calibre of the intestine strangulated; both resulted in artificial anus; both recovered without any surgical interference, the artificial opening closing in a few days, and in both there were figured motions per anum while the artificial anus was discharging. I have seen worse-looking intestine than either of these cases presented returned, and no evil ensue. I believe that no amount of caution will prevent the occasional occurrence of this accident. There is, however, a practical point in connexion with these cases of strangulation of only part of the intestine—viz., the finger of the operator should not follow the intestine so far through the ring as to endanger any adhesions that may exist close to its abdominal aspect. I think it at least probable that the safety of my two cases depended on such adhesions.

Case 8.—Was operated on in his own house at night. I had to administer chloroform myself, and then to operate, as a medical man who was with me would not give chloroform. We had a farm servant-man to hold two dipt candles as our light, but during the operation he fainted, fell on the candles, and left us in total darkness. When light was restored I gave another whiff of chloroform, and completed the operation without opening the sac. On my return to the house, thirty-six hours after the operation, I found the bowels had moved, and the patient sitting at the fire smoking his pipe. His recovery was rapid and perfect.

Case 14.—In this case two or three enlarged lymphatic glands occupying the hernial region left me entirely dependent on the general symptoms

as to the nature of the case. The operation alone demonstrated a very small hernia behind the glands, which were easily separated from the outside of the sac. I am disposed to think that the swelling of the gland, usually in or very near the ring, must have distended the ring, and so led to the rather uncommon case of femoral hernia in a boy. The glands were more troublesome in the after-treatment than the hernia.

Case 15.—The medical gentleman who sent this case to the Infirmary thought he had almost completely reduced the hernia three days before her admission, symptoms being two days antecedent to the time of his seeing the case. The patient was a fat, flabby woman; when she came to the Infirmary there was a great deal of swelling round the sac, which could be pushed away by moderate handling to the extent of apparently reducing the tumour to less than half its original size. The inference here is obvious—unless the hernia disappears with a jerk, and unless the symptoms are relieved by reduction, surgery has done no good.

Case 18.—The history in this case induced me to postpone the operation for a few hours, with, as the event showed, a considerably increased risk to the patient. It was an old hernia which had occasionally been two or three days irreducible without any bad consequences ensuing. Her bowels had moved freely the day before, on the morning of admission, and again after an enema given in the Infirmary. At first there was neither pain nor tenderness in the tumour; there was no vomiting; the abdomen was soft and very little swollen. Under these circumstances, I made several attempts at reduction, the effect of which was to make the tumour painful and tender, to induce nausea, though actual vomiting did not occur; in short, an obstruction was changed into a true strangulation. When the operation was performed I found the intestine of a sienna brown colour, very full, and some spots of lymph in the vicinity of the neck of the sac, and, even when the neck was freely dilated, the reduction was not easy. For three days after the operation there was neither fever nor vomiting, and, though the bowels did not move, I began to hope for a speedy and safe recovery, but subsequently the case became most critical. Occasional vomiting, alternate diarrhœa and constipation, and an almost total incapacity for nourishment, rendered the result to all appearance hopeless. The hypodermic injection of the pharmacopœial solution of the acetate of morphia three and four times a day, in doses sometimes as high as twelve drops, the frequency and amount being regulated by Dr. Joseph Clarke, House Surgeon to the Infirmary, were, I believe, the means of saving the patient, who left the Infirmary perfectly well in about six weeks. I have given a full account of this case, because I believe its history was calculated to mislead, and that, if I had operated three hours sooner, I should have avoided both trouble and risk.

I could well wish I had a smaller mortality to report than appears in the above Table. There were three of the cases in which it might have been almost as well to have let them alone, and one, Case 12, was really a successful operation, but is here reported as it appears on the Infirmary books as a death.

Though in all the fatal cases, except No. 12, the sac was opened, and though No. 12 is the only case in which there was a fatal result after reducing the hernia without opening the sac, I do not think any deduction can be made as to practice on this point, because I never opened a sac except where I could not easily reduce the hernia without doing so; and this I believe sound practice, provided no forcible attempts at reduction are made. The lightest possible adhesions, however recent, or the least inflammatory thickening of the neck of the sac, will prevent a gentle taxis being successful, even when the sac is bare. In any hernia that I felt warranted in attempting the taxis, when the patient was anæstheticised for the operation, I should not hesitate to try and gently empty the sac without opening it. The adoption of this line of practice results in the sac being opened in all the worst cases. In most of the fatal cases there is, however, one element in common—the long interval between the commencement of symptoms of strangulation and the operation. This often arises from ignorance on the part of the patient and the friends. It is, however, a matter of the highest importance that, once the case has been entrusted to professional hands, no time should be lost. There is a far deeper and heavier responsibility in protracting measures, the object of which is to avoid the operation, than in accepting the inevitable at once, and operating before the combined action of time and handling destroy the pliability of the protruded intestine, and render it unfit to resume its functions. The taxis, even with very moderate pressure, will at any time soon cause or increase inflammation of the protrusion and sac, and doubtless does often convert a simple obstruction to the onward progress of the contents of the bowel into a true strangulation; so that the very fact of the surgeon making the necessary attempt at reduction renders it imperative on its failure that the operation shall follow speedily.

I have never delayed an operation or resorted to heavy pressure to effect reduction with benefit, and have had occasion to regret both the time and the pressure; and I have never seen, heard, or read of a case in which there was the least reason to regret having operated early.

ART. XX.—*Dr. Sayre's Suspension and Cuirass.* By H. MACNAUGHTON JONES, M.D., M.Ch., F.R.C.S.I. and Edin.

THE interest taken in the method of treating spinal curvatures, as recently demonstrated by Dr. Sayre in this country—and nowhere more successfully than in the city of Cork—has induced me thus early to write, through the medium of this journal, my experience of its action; and I take this opportunity of doing so, inasmuch as I have been both written to and asked by a number of medical friends many questions, both as to the benefit to be derived from, and the method of carrying out, this treatment. Dr. Sayre's work,[a] just published, gives complete information on these points; and those practitioners who have not already procured this epitome of the treatment and its results, should do so before they pursue the practice recommended, as many details are therein noticed, which will save the beginner much future time and labour. To those who have not been present at the practical demonstrations given by Dr. Sayre, this little book is invaluable, as it gives information on the process which otherwise, to those who have not seen the cuirass applied, seems complicated, whereas the excellence of the appliance rests in its very simplicity. But as in other matters, so in the application of this new support, "practice makes perfect," and there are some points on which a warning may be given to beginners, that otherwise they might have to learn at the cost of considerable inconvenience to themselves and their patients; or it might be the rejection of an invention which, so far as I have hitherto seen, has everything in it to warrant the warm advocacy of the discoverers. In his introduction to his book, Dr. Sayre says:—"This method has one certain advantage; the patient so treated is able, from beginning to the end of the course, to remain under the sole care of him who is best fitted to apply remedial means—namely, the properly educated and general practitioner. For the plan is so simple, and its application so easy, that any medical man can treat these cases himself with perfect success in any part of the country, thus saving the patient the pain and expense of travelling long railway journeys to some specialist, or institution devoted particularly to this class of deformities." Nothing, as Dr. Sayre says, is really required but the "expenditure of a few shillings for plaster of Paris," and bandage with suitable vest, to enable any village practitioner to put up a case of spinal deformities himself.

[a] Smith, Elder, & Co., London.

If nothing more was to be obtained but the advantage here referred to by Dr. Sayre, the gain to the profession, in the treatment of these spinal deformities, would be inestimable. How many practitioners must, from time to time, with pain, have witnessed the spinal deformity in some poor person, increasing and rendering life a burthen, where a spinal support of any kind could not be obtained, and when it was impossible to enforce rest. How often has he not sighed for some efficient yet cheap appliance which would, perchance, arrest the disease, and give relief to the patient. The "cost and expense of long journeys" to a special hospital, apart altogether from the additional charge for a properly fitted support, made such an effort out of the question. The absurdity of getting supports which were not made by accurate personal measurements, and the impossibility, on this account, of ordering them from a distance, without a visit to the instrument maker, prevented thousands of patients from obtaining the assumed benefit of the steel stays. Even for a person in what might be called comfortable circumstances, the cost of a long journey, going and returning, special fees to consultants, remaining in hotels, paying dearly for appliances, the securing of a spinal support, came to mean a considerable expenditure and drain on the resources, which not a few declined to incur. The result has been that, in numbers of instances, men were forced to adopt contrivances to make up for the want of a well-made support. And, in many cases, the appliance has been made "to order," sent backwards and forwards to have alterations completed, and, in the end, it may have been doing more harm than good, through inaccurate fitting. So, also, was the same difficulty experienced in the matter of keys. Patients returned with confused ideas of the use and object of the key which should regulate, at periodical intervals, the pressure of the different levers. Rather than interfere, they left matters alone, until the expensive apparatus was rejected from the pain and discomfort it occasioned; or, if they consulted some local practitioner on the subject, he either honestly confessed his ignorance of the action of the instrument, or, in a large number of cases, made matters still worse by directing the pressure wrongly. These and many other drawbacks, placed provincial men, living at a distance from a good instrument maker, at a considerable disadvantage. I believe that these obstacles have been now altogether removed by the plaster cuirass of Dr. Sayre. Before detailing the short histories and results of this plan in the cases I have treated up to

the present moment, I desire, briefly, to make a few remarks for the benefit of those who have not seen Dr. Sayre's manual, on the precautions which it is requisite to take to ensure a successful result.

1st. *The Suspending Apparatus.*—A good tripod should be made of *metal*—gas pipe, about an inch bore, answers remarkably well. If this cannot be procured from any local smith or plumber, a capital tripod is to be had of Messrs. Khrone and Seseman, of Duke-street, Manchester-square, with all the necessary pulleys and straps. But I have suspended several cases from a hook fixed in the ceiling, to which the pulley was connected by a strong ring; or a bar may be run out from the wall of a room, and the pulleys attached to a hook at the end of this. This plan saves considerable expense, answers all purposes, and for self-suspension in lateral cases, where the expense of a tripod is a consideration, is essential. The cross-bar, to which are hooked the head and chin-piece, and the axillary bands, can then be had separately from the same makers above-mentioned. As regards the chin and head-piece, the former may be improved by a deeper cupping of the leather and better lining or padding for the chin-rest, and also a broader occipital strap, or by putting a pad of lint between the strap and head before suspending the patient. In regard to the axillary bands, these should be well padded, otherwise they are uncomfortable, and hurt the axilla during suspension. *In suspending*, get the patient to come up himself, with the extension, on his toes, gradually raising his heels, and first bearing a good deal of his weight on the axillary straps, and, before he is suspended and these are finally buckled, the greatest care should be taken that the chin-piece and axillary straps correspond in length in proportion to the height and size of the patient. The chin-strap should not be buckled too tight, or it will press uncomfortably on the neck behind, nor too loose, or it will slip up over the chin. If the patient is drawn up too high (off the ground altogether) the strain is sometimes great and causes pain—this may escape the notice of the person applying the bandage; and, on the other hand, if the feet be permitted to rest on the ground, the success of the operation may be interfered with. Strict directions, then, should be given to the assistant to keep the suspension cord steady; this is the more requisite in a heavy person. Children will remain suspended for a long time, long enough for the cuirass to harden, and many seem greatly to enjoy the performance. *The appliances*—the most important essential is good plaster;

the best I have obtained through Messrs. Khrone and Seseman. The bandages, of cross-barred crinoline muslin, the meshes of which are not too small, should have plenty of plaster rubbed in; they should not be rolled tight, nor be too long (four to five yards). Not more than two bandages should be placed in the bucket of water at the same time, and only one if the bandages are short; they should not be removed until the entire bandage is moistened through, and they should not be applied too wet. *Tin strips*—these, with small holes punctured at either side alternately, to roughen the surface, should be ready, at least ten in number, to go between the folds, and strengthen the cuirass at the sides and in the back or front; they should be previously cut to the size required, and care should be taken that the ends do not press on the skin at any part, by turning these out, and always applying some rolls of bandage before the tins are inserted. *The vests*—skin-fitting—may be had of Messrs. Khrone and Seseman, and the measurement should have been previously taken, so as to secure the vest stretching well down over the trochanters at either side. With a bandage and pins it is easily secured at the sides and under the perinæum, or, as advised by Dr. Sayre, with "tapes, one in front, the other behind, near its lower edge, and tied tightly over a handkerchief placed on the perinæum." I stitch the centre of a piece of tape to the vest above, and bring the two ends over, one at each side of the neck, and then stitch these to the vest behind. This holds the vest well up. The fault is on the right side if the vest be of the two a little long. *The pads*—Besides the cross pads for the mammary glands in the female, and the dinner pad, to allow for the child's digestive capacity, the most important protection is to be had from the iliac pads, and those which are necessary to protect any projecting spinous processes from irritation. A pad should never be omitted over the crest of the ilium at either side, nor a small one, held down with adhesive plaster, over any prominent spinous process likely to fret. I had learned this by experience before I saw that Dr. Sayre had drawn special attention to it in his manual. The height of the patient should be accurately taken before, as after, suspension; also, with a flexible leaden strip, the mould of the spine. Thus changes in height and shape can be accurately ascertained.

In taking the patient down, let an assistant support him under the armpits, and another raise his legs, while the chin-strap is being undone. He should then be carried on to a mattress laid on the floor, the trunk being first placed on it, so as to avoid injuring the

cuirass, and he should lie in this position until the plaster sets. The pads can now be removed; any moulding of the cuirass, as between the mammæ, or at the crest of the ilium, or any strengthening of the weak parts by plaster, can now be effected.

Cleanliness and pediculi—Before the patient (especially a child) be put up, it should be ascertained that the skin is critically clean, and that there are no pediculi anywhere on the head or body, otherwise, after a short time, the cuirass may have to come off. To cut the cuirass when necessary, I find that by slipping in under it a strip of leather, and cutting straight down on this with a sharp shoemaker's knife is the best plan; the edges can then be neatly formed, and the cuirass arranged for lacing or hooks. For Dr. Sayre's treatment of abscess or ulcer, and the ingenious plan he adopts for treating such without removing the cuirass, I must refer the reader to his own work. To heal abrasions, &c., I apply collodion to the part and Friar's balsam. I cannot avoid quoting these important passages in Dr. Sayre's book which bear on the examination of a case of spinal disease, and also on the advantages of this mode of cure:—

"In this method that I recommend as the most convenient for examining the spine, the child—for it is usually in early life that Pott's disease occurs—should be stripped, and so placed across the knees of the surgeon that its face looks downwards, its arms resting over one thigh and its legs over the other. The surgeon, by separating his thighs, is then able to make a gradual extension of the trunk and spine of his little patient. This gradual extension should be kept up until it has served to relieve the nerves from pressure, and the muscles from irritation; but care should be taken that it is not carried so far as to produce reflex muscular contractions. When the trunk has been thus extended, the first result that will probably be noticed is, that the child takes a full and deep inspiration, and that there is a long-drawn sigh of relief. So long as the surgeon keeps his knees apart the child will remain quite comfortable, and will breathe easily; but when the extension of the trunk has ceased the child's muscles are again excited to contract, and the short catching respiration and grunting are renewed.

"In disease of the dorsal portion of the spinal column, it often happens that the parts primarily and most extensively involved are the sides of the vertebral bodies, near the articular facets for the heads of the ribs. In such cases the anterior portions of the bodies of the vertebræ and the intervertebral cartilages may become subse-

quently involved. Here the blow or injury which gave rise to the disease was probably received upon the sides of the affected vertebral bodies, or the heads of certain ribs were driven against their corresponding vertebræ. The surgeon, therefore, in his examination of the spinal column should not be content with testing the condition of the anterior surfaces alone of the vertebræ, but he should also prove the condition of their sides, by pressing the heads of the ribs against their articular facets; for it often happens that no symptoms of spinal disease will be manifest before this is done. The spine may be quite straight, and the surgeon may be able to press it down, and 'percuss' it without giving the patient pain; and yet Pott's disease may exist. Pressure upon the ribs, so directed as to force their heads into contact with the articulating facets, when it gives the child pain and causes muscular spasm, has afforded good evidence of inflammation of the spine, and if applied to each rib separately will indicate the exact state of the disease.

"The advantages which the plaster jacket has over other dressings in the treatment of Pott's disease are:—1st. It affords the means by which absolute rest is secured, motion of the parts diseased not being permitted, even in the slightest degree, so long as the apparatus is properly adjusted. The result is that consolidation takes place more readily than in plans of treatment where motion is permitted by the daily change of the appliance. The usual treatment of a broken leg is thus applied to a carious spine; as in the one case, so in the other, union is apt to be much more prompt on the use of a fixed dressing securing absolute immobility, than when an apparatus is frequently changed. Another advantage is this:—The local pressure attending the use of other forms of apparatus is avoided. The chief way in which most patients have hitherto been kept straight was by means of some mechanical apparatus pressing directly upon the sides of the projecting spinous processes, forcing them inwards, and at the same time making traction in the opposite direction at other points, for the purpose of rendering the spinal column straight. In other words, the fulcrum of pressure is usually first over the projecting part, and produces pressure that interferes with the deep-seated circulation, disturbs nutrition, and retards consolidation and recovery.

"In addition to the perfect comfort of the jacket, and the absolute immobility which can be obtained through it, it has this further advantage, that it may be easily applied in any part of the country

without the trouble and expense of resorting to any instrument-maker."

I now proceed to give the brief outlines of cases of spinal disease undergoing this plan of treatment. I must apologise for the necessarily incomplete details of some of the cases; but pressure of space prevents my giving them as fully as I otherwise might:—

Joseph Halligan, aged seventeen, railway porter, came to the County Hospital on July 21st, 1877, suffering from Pott's curvature low down in the dorsal region. This had gradually increased up to two months previously; no attendant symptoms of any importance, save difficulty in walking or in raising weights; general health good, but pale and anæmic look. I sent him to London to the Orthopædic Hospital to get a proper support, and Dr. Sayre being accidentally present when he arrived, he put on him his cuirass on or about the 14th of August. When Dr. Sayre visited Cork on the 19th of September, he was here before him, and was present at the demonstration he gave in the Queen's College. His health was greatly improved; his colour restored; he could walk well; he could stoop without pain. I had this letter from him on this day:—"Dear Sir, I received your card, and I am happy to tell you that I am getting stronger and stronger every day. I am at business since I left Cork, and it is no trouble to me. When the time will be up to take it off I will go and see you, please God."

Julia Donegan, aged eleven, came to the South Infirmary on July 26th, 1877; she had slipped and fallen in going down stairs five weeks previously; had pain in the back since, and now there was angular curvature in the lower cervical and upper dorsal regions. There was also an obliquity of the pelvis, and slight lateral curve in the lumbar region. At the time I ordered rest in the horizontal position, &c. On September the 9th I put her up with the cuirass; she has since worn it. I saw her yesterday (November 10th); she is much improved, in perfect health, and has suffered no inconvenience.

Mary Leary, aged sixteen, came to the South Infirmary and County Hospital with extreme deformity in the lower cervical and dorsal regions. There were two distinct prominences—one involving the last three cervical vertebræ, the other larger, hump, and very angular, including the four or five upper dorsal vertebræ. There was in addition a well-marked lateral curve to the right side in the lumbar region. Twelve months previously she had fallen from a chair, it having been drawn suddenly away in play. First complained of pain and sleeplessness; walks badly and slowly. This was really an unpromising case; the girl looked emaciated and anæmic; there was no disease of the lungs. On the 22nd of September I put on a cuirass, carrying the bandage up as high as I could on the thorax. I told her to come to get her head-rest on, though I did not expect much

from the ankylosed look of the vertebra in the cervical region. She only returned once since to get looked at. Yesterday (November 10th) I saw her. She looks better in health; "all pain is gone;" she "walks well;" finds the cuirass a "relief and support; feels quite comfortable, and it has made her back strong."

Fanny O'Meara, aged fourteen, came to the South Infirmary on the 25th of September. Employed in a printing office at constant machine work for three years; now well-marked lateral curvature in the entire dorsal region, to the right side, with prominence of the ribs at same side; secondary curve in the lumbar region; prominence of ribs at right side. Six months since the alteration in shape was noticed; only accompanying symptoms slight failure in health, and difficulty of breathing, marked at night; put up in cuirass. Saw the patient yesterday in good health; "complains of nothing;" wearing the cuirass, which causes no inconvenience, and is not yet cut.

Margaret Murphy, aged fifty, came to the South Infirmary and County Hospital on the 2nd of October, 1877; six months previously she suffered from rheumatism, and had a pleuritic attack of the left side; there was evidence of old pleuritic contractions of the left side, bulging of the ribs at the angles, and a well-marked lateral curve in the lower half of the dorsal region and the two upper lumbar vertebræ; was put up in Sayre's cuirass on October the 7th. I have seen her once since, when she expressed herself as greatly relieved and quite comfortable in it. I have not seen her lately.

Anne Horrigan, aged sixteen months, brought to South Infirmary and County Hospital on the 26th of October, 1877. Mother noticed the "back weak" for two months; delicate child; constant "grunting" and "catching" respiration; when child was a year old could stand; now cannot stand, but yields and cries when put on the ground; whenever the hand is taken from under the head the child screeches "the life out of her," as the mother characteristically remarks. On examination by Dr. Sayre's method across the knee, I could point out to the students the evident relief the child got on extending the trunk and supporting the head. There was angular curvature in the lower cervical and upper dorsal regions. I put the child up with the cuirass, but not having a jury-mast, I have had to postpone applying this support, which is now being made for the case. In four days the mother came to the hospital and gave this account:—Before applying the cuirass did not sleep without the support of the hand under the head; now there was great improvement; slept the night after the cuirass was put on without the head-support; is much easier, and keeps her head straighter. I saw the case on yesterday, the 10th of November. Improvement still continues, but the child is by no means as well as she might be if the jury-mast was on, which is being made for her.

Susan Cue, aged sixteen, came to Children's Hospital on September 25th; had angular curvature with tendency to abscess in the lower dorsal and upper lumbar regions; emaciated and delicate-looking; great difficulty in walking; body bent forwards, and peculiar gait. I put her up with cuirass, and saw her on two or three occasions since. She expressed great relief from the cuirass; is straighter, and walks much better. Yesterday (November 10th) I saw her. She had attached the bottom of the vest to a linen band, which had pulled the vest down. The vest was originally rather small. On examination I found that there was some galling over the prominent vertebral processes, so I cut off the cuirass, dressed the surface with collodion and Friar's balsam, put on a roller, and will put her up again in a few days. This girl is greatly improved in appearance. I should have in this instance put on a small pad of lint over the prominent spinous process, which I omitted to do.

Lizzie P., aged thirteen; spine affected fourteen months; no cause; very bad lateral curvature; general health of child seriously impaired; wearing spinal support for twelve months, but in no way improved by it; gradually becoming worse; put up by Dr. Sayre in Cork with cuirass on the 19th of September, which cuirass she wore until last week, when I put on another, as the one put on by Dr. Sayre had become soft and yielding in parts. This was the result of defective plaster. I cut the cuirass about a fortnight since. She has a tripod of her own, and has been practising self-suspension. As yet cannot walk much, but her father informed me yesterday (November 10th) that she is undoubtedly generally improved, and is better than she was since the cuirass was put on.

Mary B., aged fourteen, came to Children's Hospital on September 26th, 1877; lateral curvature for three years in the dorsal region; no cause; right shoulder now very prominent; put up in cuirass on September 28th. I saw her yesterday (November the 10th); the prominence of the scapula has completely disappeared, and she says she walks better, feels quite comfortable, and improved in every respect.

J. Costelloe, aged thirteen, came to Children's Hospital; spine affected for six years after a fall; used to have pain in the hips, but otherwise enjoyed good health; could not walk more than a mile without resting with his "hands on his knees;" Pott's curvature in lower dorsal and lumbar regions; well-marked angular deformity; cuirass put on same day. I saw him yesterday; has walked four miles without pain since cuirass applied, and feels quite comfortable. This case was sent to me by Dr. P. Berry, of Mallow.

Bridget Neall, aged fourteen; twelve months since the back was hurt by another girl jumping on her; since this has had pain in the left side; cannot stand straight without pain; any attempt to raise a weight hurts

her; walks quite crippled, and with difficulty walks a mile at furthest; cuirass put on on 18th of October. On November the 3rd I took this note:—"No pain at all now, and no pain in the side; has walked from two to three miles without pain, and feels as if she could walk any distance." I have seen her since; she is doing equally well.

G. S., aged five years; about one year since had strumous abscesses in the hand and leg; he next showed symptoms of genuvalgum, and complained of his back; no history of injury; came to me on crutches; had been in the recumbent position for ten months; Pott's curvature of the lower dorsal and upper lumbar vertebræ. On the 6th of October put him on the cuirass. It was wonderful to see the delight of this child after the cuirass was on; the little fellow felt quite independent of his crutches, and ran about without help. I yesterday heard of him, and he continues well and happy.

M. S., aged twenty; sister to the last case; subject to nervous attacks occasionally; lateral curvature which has come on within the past few years, and is now extreme; prominence of right scapula and curves in the dorsal and lumbar regions. This was a very heavy girl and difficult to suspend. I put on the cuirass one week after the brother's. She found great support and comfort from it. She came into Cork about three weeks since to get the cuirass cut to suspend herself. The cuirass was off for a few days. She got a slight attack of inflammation of the left lung, which laid her up for a few days; she cannot bear to be without the support, and now practises self-suspension.[a]

Miss M., aged nineteen; lateral curvature coming on for five or six years; pain in the back, worse at night, which prevents her sleeping; can attribute no cause, save fall from a tree some twelve years since; marked lateral curvature to left side; scapula very prominent. I put her on Sayre's cuirass on September the 26th; this being too small, I subsequently changed it for a larger one. She has learned to suspend herself; has her own tripod, and is getting on well; she now sleeps well at night, and has no pain.

Miss D., aged nineteen; four years since noticed the spinal curvature; never suffered pain, except after writing for any time; now lateral curvature, the greatest curve being in the lumbar region. I put on Sayre's cuirass on the 28th of September, which she has worn since without its being cut; she has no uneasiness of any kind, feels the support it gives, and has learned to suspend herself, and has procured her own tripod.

H. H. C., aged five years; brought to me from England, strapped to a spinal couch, on which he had been for one year and eight months confined by leather straps. In addition he wore constantly a heavy

[a] This was the only instance in which I had any apparent untoward result after suspension.

spinal support. He had angular curvature in the lower dorsal and upper part of the lumbar regions. From May, 1875, to the present time he had been kept at perfect rest; his limbs were considerably wasted, and the child was pale and delicate. On the night of his arrival in Cork I suspended him, and applied Sayre's cuirass. Writing of him, his mother, a most intelligent lady, says:—"The next day it was quite a difficult matter to keep the child from his feet, which had not felt the ground for two and a-half years." He walked about the next day, catching my hand quite pleasantly. I telegraphed to his mother to ascertain his present condition, and received this reply:—"Quite comfortable; walks when allowed, but not alone; moves about constantly; going on well; no apparent pressure anywhere.—November 9th, 1877."[a] I advised galvanism to be used for the enfeebled limbs in this case.

T. S., aged six years, came to Children's Hospital on September 21st; two years affected, after bronchitis; there was marked angular curvature in the dorsal region, combined with a lateral displacement. The child was for two years affected; there was no history of injury; the child had the usual symptoms—general failing of the health, and debility, inability to walk, and dislike to standing. The cuirass was put on on the 21st of September, and I saw the case about a week subsequently, improved considerably, able to stand and walk better. Dr. Berry informed me on yesterday (November 10th) that this case was doing well.

M. Flynn, aged fifty-six; in February last was carrying a heavy bag of oats up a ladder to a loft, and while doing so the bag tilted sharply over, causing a considerable amount of pain at the time, which from that day has never left him; this constant pain in the back and hip has worn him down. I saw him, by request, at his own house, a distance from Cork, and found him suffering from a well-marked angular curvature, which was rapidly increasing in the middle of the dorsal region. He had been in bed for months, and had been in the habit of relieving the pain, *by suspending himself by his arms from the door of his room.* He was nervous and frightened, and a difficult patient to manage. I put on the cuirass, bringing it well down to the trochanters, and strengthening it with several tin strips. The plaster which I used set rapidly, and he complained of the pressure over the hips. I unfortunately did not put on the iliac pads. However, after the application of the cuirass, and before I left, he walked, unsupported, up and down the room, but he still complained of the tightness of the bandage over the hip. The following night, though told not to disturb it, his friends got alarmed at some pain which he got from the pressure of the cuirass, and unfortunately, without waiting for advice, *cut the cuirass off.* They were ignorant country

[a] I have since got the most satisfactory letter from Mrs. C., stating that the child is improved in every way; walks alone, and that she is delighted at the result.

people, and took a panic. He has since grown rapidly worse; the curvature is increasing, and he is, I hear, very weak.

Tim Harvey, aged ten years, was admitted, with symptoms of Pott's curvature in the lumbar region, into the Children's Hospital, in March, 1877. He was kept in the hospital, with vest, in the horizontal posture, and latterly on an inclined plane, until September, 1877. On the 19th of September he was put up by Dr. Sayre, in Cork; before being suspended and the application of the plaster bandage, he could not walk; he moved, even with support from the hand, with difficulty. He has, since that date, completely altered in appearance; has got colour in his cheeks, and plays about with other children outside. He left the hospital a few days after the cuirass was put on. I saw him yesterday (Nov. 10) looking remarkably well.

Mary Nyhan, aged twelve, admitted to Children's Hospital (sent by Dr. Garde, of Timoleague) on October 1st, 1877. Lateral curvature in dorsal region. There was also considerable prominence of the fifth and of the eleventh and twelfth dorsal vertebræ. About ten weeks previously was forcibly thrown against a ditch, and since then has had severe pain in the left side and back. She had difficulty in walking and sitting. The cuirass was applied on admission. Subsequently a sister in the hospital received a letter, in which she said, "I take the pleasure of writing you those few lines, hoping to find you in good health, as this leaves me at present. I am anxious to let you know that Dr. Garde says I stand much straighter than usual." I have not heard of this case since. She walked and slept well after the cuirass was on, before she left hospital.

J. D., aged fourteen; confirmed angular curvature in dorsal region; spine affected for seven years, result of fall; pain in the side occasionally; at times burning pain in the back; cannot sit down well, must kneel to everything; can walk about a quarter of a mile, and must then rest. Put up, on the 17th of October, in cuirass. I saw this patient about a week since. He can now walk much better, and without pain; is looking stronger and healthier, and feels quite comfortable.

M. H., married, aged thirty-two, has had four children; had to leave her home in America from ill-health; first noticed spine affection when sixteen years of age, then very slight; came to me to the Hospital for Women and Children last winter, to consult me for confirmed lateral curvature. The spine was curved like the letter S. She never was without pain; slept badly; often the pain was excruciating in the back; she could not sit straight, and always had to bend forwards, resting her elbows on her knees, which were kept wide apart. On the 10th of September I put on the cuirass. When Dr. Sayre was in Cork he saw this patient, and she thanked him for the great relief and the benefit which she derived from the cuirass. This case has, perhaps, been the

as striking an example of the good of the cuirass as I have seen. The woman is now in much better health; walks better; sleeps well; and thoroughly appreciates the great good she has derived from this treatment. I wanted her previously to go to London to the Orthopædic Hospital to get a spinal support, but she could not afford it. The cuirass is now cut, and she has learned to suspend herself.

Ellen Herlihy, aged seventeen years; noticed the curvature about two years since, and had seen different medical men. At times she suffered great pain, especially when she stooped over her work; does not think she got any strain or injury. Lateral curvature in dorsal region, with prominent ribs and projecting scapulæ. Put up, on October 20th, with cuirass. She returned on yesterday to the hospital and is quite well. She has no pain, likes the support, and has no discomfort.

Ellie Barry, aged four, brought to Children's Hospital, with Pott's curvature, on September 28th; the curvature was in the lumbar region, involving all the vertebræ. The child had to be carried in the arms. The mother was uncertain of any cause. The curvature had been gradually increasing for the past few months; there was considerable deformity. I put up the child with the cuirass on the same day that she was brought, as the mother wished to take her home. There were pediculi in the hair. The child was able to stand and walk after it was applied. I subsequently had to cut this cuirass and put on another, for two reasons—the vest became dirty and pediculi accumulated on it. An abrasion was produced from the friction over the prominent vertebræ. I had the child's head thoroughly cleaned; the abrasion healed; a proper pad applied, and a new cuirass adapted. When the child left the hospital she could walk about the ward without support, and was quite comfortable.

Miss C. W., aged nineteen; slight lateral curvature in the dorsal region, accompanied with general debility and weakness of the spine. The weakness in the spine was lately becoming very unpleasant, and there had been several fainting attacks, with constant pain in the side. I put on a carefully fitted cuirass, on the 1st of November. On the 3rd she came to tell me that it made her feel "quite comfortable, and that it was the greatest support." I have since heard from her to the same effect.

R. P., aged five; had a suppurating cyst under the sterno-mastoid muscle, last March; subsequently had an attack of rheumatic fever; both left him suffering from wry neck and great debility. He had been to the sea-side, but the change had done him little service. The wry neck was followed by lateral curvature in the dorsal region, caused by the yielding of the body to the left side. Altogether when brought to me, in the middle of October, he was in a pitiable state. I first put on a cuirass, and subsequently applied a jury-mast. I have got this letter from his father,

who himself made the jury-mast:—"From the time he got on the cuirass he has made rapid strides and is putting on flesh, and looking well, while the jury-mast has been most successful. The little patient is certainly marvellously improved; he has plucked up in flesh, got colour into his cheeks, and the head is much straighter. He daily shows more power over his legs, and possesses more confidence." This has been a most encouraging case, and the parents are naturally delighted with the result.

R. B., aged ten years, October 28th, 1877; for five years has had lateral curvature of the spine; as he now presents himself, the dorsal vertebræ are curved completely under the scapula of the right side, and the scapula stands prominently out. There are no attendant symptoms of any importance, save the deformity. He was suspended about a week since, the spine visibly straightening during the suspension, and the little fellow was one inch and a-half taller when measured after the cuirass was on than before. He walked a long distance to the infirmary a few days since, and was quite comfortable in his new support.

C. J. C., aged twenty-three; terrible case of lateral deformity, the result of an old unreduced luxation of the hip; the left heel is five inches off the ground, the trochanter of this side protruding. The curvature, he says, has lasted five years at one side; before this had only the hip displacement. I never saw such a deformity as in the case of this man. It was something horrible to look at the melancholy proofs of ignorance and rashness. He had, when he was twelve years of age, been treated by a bone-setter, who had finally left him in this state after a dislocation of his hip. The pattern he had was not high enough, so I ordered another, and on trying the effects of suspension, I found the spine straightened considerably, so I put on a cuirass to try, if possible, to give some support to the distorted spine. However, he could not bear any pressure on the trochanter, and it had to come off the same night.

These cases, with two others—one, a very extreme case of old Pott's curvature, and another of the same disease in an incipient stage in a little child, aged two years—complete the number I have tried this plan on for the present. The last two cases referred to I did not take histories, &c., on suspending them, and unfortunately I have not seen them since to tabulate results. Both, however, I am aware, are wearing the cuirass still. I have thus given brief notes of these cases for the reasons and with the objects indicated in the beginning of this paper. No lateral case—and, with few exceptions, all were measured before and after the operation—was suspended in which there was not an increase in height from an inch to an inch and a-half.

On the entire I cannot but feel that this treatment opens up a

new era in the history of the treatment of these diseases. I also feel confident that, given a suitable case, no practitioner will be disappointed in this appliance, the great advantage of which is that, as I myself have done, it can either be put on in the drawing-room of the rich or in the cabin of the poor.

Since the writing of this contribution I have suspended and applied the cuirass in several other cases with equally satisfactory results. To Mr. Thomas Gelston Atkins I have to accord my thanks for the able assistance he has given to me in the application of this process in all the foregoing cases.

PERNICIOUS ANÆMIA ENDING IN MEDULLARY LEUKÆMIA.

A previously powerful woman was taken ill, in consequence of prolonged lactation, with weakness, loss of appetite, and vomiting, and at the time of her admission presented a most complete picture of pernicious anæmia (without microcytes). Four days later, some three weeks from the commencement of her sickness, her blood exhibited a pronounced leukæmic condition, and this change was followed by death in four days more. The white corpuscles were of the largest possible size, and showed the nucleus but imperfectly. Fever was never present. The spleen, and such lymphatic glands as could be felt, were not enlarged, nor were the shafts of the bones painful on pressure. The autopsy showed an universal diminution of the blood, an uniform fatty degeneration of the heart, and slight swelling of the follicles of the spleen without general enlargement of the organ; while in the kidneys miliary leukæmic nodules were observed. The marrow in the diaphyses of the tibia was coloured a drab-grey with solitary large liquid purulent depots, and smaller viscous and gelatinous spots, and these latter were interspersed through the otherwise normal-looking marrow. The sternum, ribs, vertebræ, and pelvis were almost normal. In the diseased marrow were principally found large round cells, with pimple-shaped nucleus, solitary lymph corpuscles, red blood corpuscles (free both in cells and in granules); no nucleated red corpuscles. Charcot's crystals were abundant both in it and in the spleen. Of these anatomical alterations, the fatty heart should be attributed to the anæmia, since in pure leukæmia it is not found to such extent and degree; the rest are due to medullary leukæmia. According to M. Litten there are no radical differences between anæmia and leukæmia, the latter being but the intensification of the former, such as might readily be induced in an individual who had already suffered a disturbance of sanguinification. In the foregoing case the hyperplastic condition of the marrow of the bones, the result of the pernicious anæmia, became the starting point of the leukæmia.—*Berl. Klin. Wochenschr.*, 1877, No. 19; and *Centralb.*, p. 743, 1877. J. M. F

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

WORKS ON DISEASES OF THE SKIN.

1. *On the Nomenclature and Classification of Diseases of the Skin.* By L. Duncan Bulkley, M.D. New York. 1877.
2. *Two Cases of Morphœa. Ibid.*
3. *A Clinical Study of Herpes Zoster. Ibid.*
4. *Analysis of* 617 *Cases of Skin-Disease. Ibid.*
5. *The Use and Value of Arsenic in the Treatment of Diseases of the Skin. Ibid.*

Dr. Bulkley sends us reprints of several of his papers, which evince his careful study of the pathology and literature of cutaneous diseases. The pamphlet on Arsenic is carefully worked up, and the following quotation will show that the author holds more hopeful views of the curability of psoriasis than some practitioners will admit:—

"Can arsenic ever cure psoriasis? I answer most emphatically that it can, and that in proportion—first, to the age of the patient; second, to the duration of the disease; and, third, to the amount of previous treatment. 1. In very young subjects—I mean ten or twelve years or under—psoriasis is comparatively curable, and, as a rule, need not run, as I have known of its doing, from the age of five to that of fifty-five years; and arsenic should always be given fearlessly and patiently to children afflicted with psoriasis, and with very good probability of effecting a cure—that is, a *permanent* removal of the disease. 2. Recent attacks of psoriasis for the first time in persons of older years may be treated with arsenic with very encouraging prospect of success, but the remedy should be continued for a long time and very steadily. 3. In those who have had the eruption for many years, and have received little or no treatment, I believe arsenic will accomplish the cure of the disease in many instances, although a previous trial of the remedy irregularly, and consequently ineffectually, diminishes very considerably the chances of success.".

On Port-wine Mark, and its Obliteration without Scar. By Balmanno Squire, M.B. J. & A. Churchill. 1876. Pp. 32.

The method proposed by the author is briefly as follows:—Freeze the part to be operated upon by the ether spray, then scratch the skin deftly with an ordinary cataract needle in parallel lines about $\frac{1}{16}$th of an inch distant from each other, so as to divide the dilated vessels. Before the part has thawed place a piece of blotting paper upon it and press firmly upon the skin for five or ten minutes. On any subsequent occasion make the cuts obliquely across the former ones. For minute directions as to the several steps we must refer our readers to the pamphlet, and if this simple method be as effectual as the author claims, we may soon expect to hear of its succeeding in the hands of others.

Archives of Dermatology. Vol. II., No. 4; III., Nos. 1, 2, 3. New York: Putnam's Sons. London: Smith, Elder, & Co.

We must again note with commendation the excellent digests of literature which appear in this quarterly, and which are so conveniently arranged as to be of great value for reference. In the number for April, 1877, is a translation of a long and important paper by Prof. Moritz Kaposi, on the present state of the doctrine of vegetable parasites of the skin.

These Archives form a very creditable addition to medical literature, for which we have to thank our American brethren, and they deserve a honourable place in every medical library.

Modern Indian Leprosy; being the Report of a Tour in Kattiawar, 1876. Printed at the expense of the Chiefs of Kattiawar. Bombay. 1876. 4to. Pp. 96.

The native chiefs of Kattiawar, with praiseworthy liberality and enlightenment, voted an allowance to Dr. H. V. Carter in aid of a tour through their province, in order to prosecute further researches into the haunts and homes of leprosy, and they have now printed his report of the tour. In this district of W. India, where leprous disease is very frequent, to an extent previously unanticipated, where, indeed, it seems actually on the increase, and where it often assumes a severe form, there is, as in so many other regions, absolutely no public provision for the leprous poor and sick. Since the adequate medical treatment of leprosy in rural districts is

quite impracticable, Dr. Carter's suggestions for the practical alleviation of this great social evil comprise only a repetition of what has been already urged upon the attention of the Government at home and in India. The plan consists simply in the complete isolation of the leper, and, if possible, his removal to a suitable asylum. In Dr. Carter's opinion, no better means offers of elevating the general tone of the people than the inauguration of a plan for suitably treating their leprous sick.

An Elementary Treatise on Diseases of the Skin, for the use of Students and Practitioners. By HENRY G. PIFFARD, M.D. London and New York: Macmillan. 1876. Pp. 375.

THE best point about this book is the *résumé* of foreign and domestic literature given in connexion with each article, while printer and publisher have done their best to clothe what the author had to say in an elegant and attractive form. To specialists it will prove useful as a work of reference, and some valuable hints as to treatment may be gathered from its pages, still we do not think that it will win much favour as a text-book, at least in this country. Two novelties are attempted—a new classification (!), and an effort to rehabilitate the French doctrine of *dartres* and *herpétides* under the uncouth name of *rheumides*. On the first point we need only remark that Group V., "Affections of Uncertain Nature," embraces 15 forms of skin disease of the most heterogeneous nature, some of them common affections; and, as to the arguments advanced in support of the rheumic diathesis (including eczema, psoriasis, and pityriasis), they are quite inconclusive and unsubstantial. The confusing chapter on Scrofulides is admittedly taken chiefly from Hardy, and we believe that the suggestion to cast aside the term Lupus, viewing it as an invariably scrofulous affection, is one which will meet with little support. Rodent ulcer the author is unable to recognise as a distinct species, and his estimate of the current state of opinion respecting it is, that "the majority of writers simply give the name *rodent ulcer* to the most destructive form of lupus, the lupus exedens or *noli me tangere* of the English," (p. 100.) The book is illustrated by 49 woodcuts, many of them reproduced from Neumann—the perennial source of dermatological histology—and 5 original micro-photographs are introduced, which are so hazy and indefinite as to be quite valueless.

The author has paid some attention to the curious form of baldness known as Alopecia areata, or Tinea decalvans, and enters at

length into the discordant opinions entertained respecting it. He concisely summarises the points at issue by expressing his belief "that Gruby's observations did not concern the present affection (alopecia areata) at all, but related to trichophytosis capitis, that Bazin and Fox mistook fatty matters for spores, that Malassez first discovered that a fungus frequently, if not always, accompanies the affection—and, finally, that the fatty degeneration above noticed introduces a further perplexing element into the study of this obscure affection." (p. 294.)

Atlas of Skin Diseases. By Louis A. Duhring, M.D. Part II. Philadelphia: J. Lippincott & Co. 1877.

The second part of this fine Atlas has reached us after a long delay, which the publishers explain was occasioned by unlooked-for difficulties attending the reproduction of the portraits.

We cannot speak too highly of the beauty and artistic finish of the plates, and the minutest details are so faithfully rendered that every point in the external characters of the eruption figured could be demonstrated upon the drawings. No better companion could be had for self-instruction or for clinical teaching; and as the edition is limited, and the lithographic drawings will be effaced after the first printing, we recommend all intending subscribers to lose no time in ordering this admirable publication. The diseases represented are acne rosacea, ichthyosis simplex, tinea versicolor, and sycosis non-parasitica. The illustration of the last-named affection is the best with which we are acquainted.

Atlas of Skin Diseases. By Tilbury Fox, M.D. London: J. & A. Churchill. Parts XVII., XVIII.

The last two parts of this Atlas have now reached us, and we cordially congratulate Dr. Fox and his publishers upon the punctuality of its appearance, and upon the general character of its execution in its completed form. The profession can no longer complain of a lack of guides, textual and pictorial, into the secrets of dermatology; and for a moderate sum—exactly corresponding to the ordinary fee for two courses of lectures—every one may possess himself of a handsome portfolio of about 100 illustrations of different forms of eruptions on the skin. The editor has, evidently, been at much pains to perfect his undertaking, and was careful not to omit any important or common disease of the skin. We trust that the

enterprise of the publishers and the energy of the editor will reap the harvest of success which is but their due.

Fasciculus XVII. contains representations of Seborrhœa, Morphœa (Addison's Keloid), and Leprosy; and the concluding fasciculus represents Fibroma, Pachydermatocele, the more common affections of the Nails, and Hydroa, as described by Bazin. Appended to the Atlas is a list of the diseases, arranged in the order in which they are grouped in the 72 Plates, and followed by an alphabetical Index.

Epitome of Skin Diseases, with Formulæ. By Tilbury Fox, M.D., F.R.C.P.; and T. C. Fox, B.A. (Cantab.), M.B. Second Edition. London: Henry Renshaw. Small 8vo. Pp. 144.

The first edition of this miniature work was exhausted in six months. The authors state that they have made many alterations in, and some few additions to, this second edition; we are, therefore, sorry to find that it contains the same inelegancies to which we drew attention in our otherwise favourable notice of the first edition (see *Dublin Journal of Medical Science*, Volume LXIII., page 237).

Notes on the Treatment of Skin Diseases. By Robert Liveing, A.M. and M.D., Cantab. Fourth Edition. London: Longmans, Green, & Co. 1877. Pp. 127.

We have already on two occasions expressed the high opinion we entertain of this little book, so that it only remains for us to say that its value is now enhanced by the addition of a handy index. Dr. Liveing has also developed the section on Classification of Affections of the Skin, and gives for the first time a plan of classification adapted, on the one hand, from Neumann's Simplification of Hebra's System, and, on the other, from Erasmus Wilson's scheme.

The Treatment of Spina Bifida by a New Method. By James Morton, M.D.; Surgeon in the Glasgow Infirmary. Pp. 120. Glasgow: James Maclehose, St. Vincent-street.

The author of this little book claims the best attention of all surgeons, because of the nature of the results which he has obtained. The treatment of spina bifida has long been one of the great difficulties of surgery, and the most that has been done has not been

encouraging. Those who have been bold enough to go beyond the palliative methods have very often been rewarded by failure, and have, in the end, given up the attempt in despair. Dr. Morton calls his plan new, but it differs rather in method than in principle from what has already been accepted as one of the means of dealing with this affection. It consists in injecting into the sac the "iodo-glycerine solution, and under certain precautions, the most important of which is the prevention of the continuous loss of the subarachnoid or cerebro-spinal fluid, which must be regarded as essential to the integrity of the cord, being a necessary part of the contents of the spinal canal."

The solution is thus formed:—

℞.—Iodi,	. . .	gr. x.
Potassii iodidi,	. .	grs. xxx.
Glycerini,	. .	ʒi.

At first Dr. Morton was in the habit of puncturing the sac, as a tentative measure, to ascertain whether the membranes could be pierced with safety; but he now injects at the first sitting. The glycerine is adopted because it renders the solution less diffusible than if water or spirit were used in its preparation. The entire proceeding may be summarised as follows:—A spot is selected "slightly to one side of the middle line, and as near the upper part of the tumour as may be possible—that is, where there is an available space," and this is pierced with a trocar and canula of medium size. About half the contents are allowed to escape, and then a drachm or half a drachm of the fluid already described is slowly injected. The next step is to close the puncture very carefully with collodion. Dr. Morton regards this as of the greatest importance, the presence of the cerebro-spinal fluid being essential to the functional, if not to the structural, integrity of the spinal cord and brain. If everything goes well the tumour may be reinjected in a few weeks. The effect of the treatment is that the tumour gradually solidifies and disappears.

The cases in which this course may be pursued with hopes of success are those in which there is no paralysis either of limbs or sphincters, and no other deformity of importance. The book contains reports of fifteen cases, and in all these Dr. Morton's method has been carried out either by himself or by others. Twelve have been successful. None of those which died can be regarded as against the operation.

The illustrations exhibit very well the results that have been so far gained. The details of the cases are sufficient to guide any surgeon desiring to give Dr. Morton's recommendations a fair trial. This they ought, undoubtedly, to have; and, should experience corroborate the author's observations, he may justly boast of having won a great triumph in the practice of surgery.

An Essay on Hospital Mortality, based upon the Statistics of the Hospitals of Great Britain for Fifteen Years. By LAWSON TAIT, F.R.C.S., Ed. & Eng. London: Churchill. 1877.

THIS work, which is dedicated to the memory of the late Sir James Simpson, is apparently written with the good intention of pointing out those defects in our hospitals which contribute to what Mr. Tait seems to think the excessive mortality of patients in many of our largest medical charities. Mr. Tait informs us that the inquiry, the results of which are recorded in this essay, is only preliminary. We must, with great regret, express our opinion that the preliminary inquiry is so unsatisfactory, and the deductions which Mr. Tait has drawn from it are likely to prove so erroneous, that we shall not be prepared to accept any further conclusions developed therefrom, until Mr. Tait adopts a somewhat more exact method than is shown in the work before us. Mr. Tait says: "The more I thought this difficult subject over, the more I became satisfied that the first step was to establish the facts of a total hospital mortality for a definite and somewhat extended period." This appears to be pretty nearly all Mr. Tait has done, at very great labour to himself, and considerable trouble to the registrars of the various hospitals from which he has obtained his information. The title of the essay states that it is founded on FIFTEEN years' statistics, but the statistics of the first ten of the fifteen years, according to Mr. Tait, "were such as could hardly be depended upon for accuracy." The total number of patients dealt with in the tables is over *two millions*. Of these one million and a quarter were included in the returns "which could hardly be depended upon." We must therefore consider ourselves excused from noticing in detail any deductions drawn from an inquiry where two-thirds of the facts are admitted to be doubtful. Mr. Tait has made the best of a confused and misleading set of statistics, but, under the circumstances, his conclusions are quite valueless. Mr. Tait says, many times—we do not know how many—that "a most stringent

inquiry is demanded" into this, or that, or all the hospitals with which he deals. In this we quite agree, but defects in hospital construction, location, or management could be inquired into without Mr. Tait's gigantic list of unreliable figures. We have further to state that, in our opinion, each hospital must be dealt with separately, and inquired into on its own merits. Mr. Tait's search after *hospital constants* is an instance of statistics run mad, and calculated to throw great discredit on hospital statisticians. We shall give our Dublin readers an example of Mr. Tait's knowledge of Dublin hospitals. He says:—"There can be no question that the low mortality, and especially the diminished residence, in the Dublin hospitals, must be, to a considerable extent, due to the repeated inspections and complete annual reports of the Board of Superintendence." Mr. Tait has evidently a great admiration for the Dublin board; we are afraid he knows little about it. Does Mr. Tait know that the repeated inspections consist of *one* annual visit to each hospital under the control of the board? Does he know that three or four hospitals are inspected in a single afternoon? Does he know that *due* (generally a fortnight's) notice is given to the hospital authorities before the visit is made? Mr. Tait will be surprised to hear that the board is, to a considerable extent, composed of the governors and officers of the hospitals which are supposed to be under its supervision, and that those governors inspect, and sign the reports upon their own institutions. The completeness of the annual reports is equally doubtful; faults are found where no faults exist; the most glaring defects are passed unnoticed; the reports are almost invariably published a year late; once, two years were condensed into one report; on another occasion the secretary was ill; during his illness the documents of the board were all made away with, and for that year there was no report. We do not know how Mr. Tait can have conceived such a high admiration for the Dublin Board of Superintendence. We, here in Dublin, have always looked upon it as a transparent sham. Why it was instituted no one could ever find out, inasmuch as all the powers possessed by the Board of Superintendence have been also possessed by the Local Government Board and its predecessor, the old Poor Law Board, since the passing of the Medical Charities (Ireland) Act in 1851 (see section 18). Some persons have suggested that this board of Mr. Tait's admiration was constituted to find work for "idle hands to do."

RECENT STUDENTS' BOOKS.

1. *Aids to Botany.* First Edition. 56 pp.
2. *Aids to Chemistry.* First Edition. 64 pp. By ARMAND SEMPLE, M.B. Cantab. London: Baillière, Tyndall & Cox. 1877.
3. *Questions and Answers.* 64 pp. By W. DOUGLAS HEMMING, M.R.C.S. London: Baillière, Tyndall & Cox. 1877.
4. *Examination Papers.* 112 pp. Compiled by W. J. H. LUSH, F.L.S.; M.R.C.P. London: Churchill. 1877.
5. *The Examiner in Anatomy.* First Edition. 174 pp. By A. T. NORTON, F.R.C.S. London: Smith, Elder & Co. 1877.

THE medical student of the present day has many friends, all willing to assist him in passing his examinations with the least possible amount of knowledge. Such is apparently the object of the first three of these small handbooks. They profess to be intended solely for the use of students, but we cannot too strongly urge upon every student in medicine the folly of supposing that by such means he can ever attain to the goal of his ambition, be that goal even the "lofty" one of *getting through* his examinations with the least possible expenditure of brain energy. Narrow in their conception, and imperfect in their details, we believe them to be positively injurious in their object, and the student who relies upon them for information will find them indeed but broken reeds to lean upon. The only good result we can see that can be derived from the publication of these handbooks is that they may serve as a lesson to their compilers to direct their surplus energies into a channel more useful to others and more profitable to themselves.

Mr. Lush's collection of examination papers has certainly the advantage over the preceding of not being injurious. It may be of use to those students who may not otherwise have access to examination papers, so as to be able to form an idea of the style of questions which may be submitted to them.

Mr. Norton's book commends itself to us as one which may prove of great service to candidates for medical degrees. Its object is not to teach anatomy in a narrow compass, but to supplement anatomical research. Its use is to teach medical students *how* they should answer questions set to them at their examinations. This is a point in which, as a rule, most of the men presenting themselves

before examining boards are most deficient. The candidate has perhaps a very fair knowledge of his subject, but he may have such a difficulty in expressing himself properly on paper that he may seriously compromise his chances of success. He has frequently a method of being too discursive, and of wandering from the issue raised in the question. It is to remedy these defects that Mr. Norton has given us the results of his experience in the book before us. He recommends to the student the following plan:—Firstly, that each question should be read several times, until its direct bent should be ascertained; secondly, that a number of heads should be written upon a slip of paper, and, after deliberation, arranged numerically, according to their respective importance; thirdly, that the answer should be developed by a full description under the different heads. The wisdom of this advice will not, we hope, be lost upon those who hope to make the best of their knowledge at their examinations.

INFLUENCE OF ALCOHOL ON MENTAL DISEASES.

M. Magnan deduces the following conclusions:—1. Alcoholism presents different characters according to the kind of intoxicating liquor by which it is produced. 2. Alcohol by itself does not cause epilepsy. When the latter does arise it depends upon a predisposition of the subject, or on some other substance besides alcohol. Epileptiform attacks of chronic alcoholism are caused not by the liquor taken, but by the organic lesions already produced in the nervous centres. 3. Three forms of delirium tremens may be distinguished by particular characters. The one significant of a traumatism or an intercurrent affection; another spontaneous, apyretic, and benign; the third, spontaneous, febrile, and grave. 4. Alcoholism may conduce directly to general paralysis; certain terminal lesions of chronic alcoholism do not differ from the lesions of general paralysis. 5. Alcoholic insanity differs from all other forms of insanity, but it may complicate and mask them, expedite their genesis, and accelerate their progress. Finally it may be the point of departure of a partial delirium with tendency to systematic action and to chronicity.—*Proceedings of International Congress*, 12 Sep., *Gaz. Hebdom.*, Oct. 5.

PART III.

HALF-YEARLY REPORTS.

REPORT ON PUBLIC HEALTH.[a]

By Charles A. Cameron, M.D., L.K. & Q.C.P.I., Diplomate in Sanitary Science, Cambridge University; Fellow and Professor of Chemistry and Hygiene, Royal College of Surgeons in Ireland; Medical Officer of Health and Analyst for Dublin, &c, &c.

IS THE FLESH OF ANIMALS AFFECTED WITH CONTAGIOUS PLEURO-PNEUMONIA WHOLESOME FOOD?

Amongst the causes that largely contribute to swell the death-roll are foul air, impure water, and insufficient and unsound food. This is universally acknowledged, yet it is difficult to directly refer particular cases of death or illness to the use of impure water, and still more so to the respiration of vitiated air. When water contains the germs of some such disease as Asiatic cholera or enteric fever, it is comparatively easy to refer cases of illness from those diseases to the use of such water. Those maladies are serious, and set in quickly, and therefore their immediate causes can be frequently discovered. When, however, as is far more generally the case, potable water is impure from the presence of excessive amounts of organic matters, which have no specific infective properties, the bad effect which it produces upon the health is, as a rule, only manifested after a considerable period of time has elapsed; and in the case of a large proportion of the people who use it, no *apparent* effect is produced. Water that is admittedly largely contaminated with sewage is constantly used by large numbers of persons, and when attempts are made to substitute for such impure water a purer liquid, the objection almost invariably raised is that no one has ever been known to suffer from drinking the foul water.

[a] The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics &c. They may be forwarded through the agencies of this Journal.

It is well known that fish out of season, or not quite fresh, putrid or musty food, flesh affected with parasites, and the milk of cows suffering from foot-and-mouth disease, often produce immediate, serious, and even fatal disease. Such being the case, it is by no means unlikely that the flesh of animals suffering from various febrile maladies may be a common cause of disease in man—disease not of sudden accession, such as is produced by a powerful animal poison, but slowly arising, and rarely assuming a malignant character. Unsound food is an acknowledged factor in producing diarrhœal complaints of various kinds; and it is likely that the flesh of animals killed whilst in the acute stage of inflammatory disease may produce diarrhœa, though, for reasons which shall be fully stated further on, it is rarely that in such cases the effect can be clearly referred to its cause.

CONTAGIOUS PLEURO-PNEUMONIA OF CATTLE.

This disease affects only the ox tribe. It has been known in Northern Germany and in Russia for a very long period, but in Ireland its appearance was not noticed before 1841. There are two kinds of pleuro-pneumonia affecting the ox; one resembles the pleuro-pneumonia of the pig, sheep, and other animals, and is non-contagious. The other form is highly contagious and much more fatal. Its symptoms are well marked. The attack is generally ushered in with violent shivering; soon the animal begins to cough, not loudly at first, but with increasing force as the disease develops. The pulse is full, and at first increases from 70 or 75 to about 100 beats per minute; but in the later stages of the disease it declines, and becomes feeble and indistinct. The temperature invariably increases, and acute febrile symptoms rapidly present themselves. In the severe stage of the disease there is usually a loud respiratory murmur, and the nasal cartilages rise spasmodically at each respiration. Pressure on the spine appears to occasion pain, as the animal bends deeply under the most gentle pressure. The dry, sonorous râle of ordinary bronchitis can be heard; and a sound, as if pieces of hard leather were undergoing friction, may be observed, until the last stage of the disease, over a large portion of the thoracic surface. The animal refuses to eat, and often suffers from diarrhœa. The appearance of the animal changes during the progress of the disease; its hair stands out from the skin, and acquires a dull hue; the sight becomes dim and watery, and a discharge issues from the nostrils. If the disease be long continued

the animal loses weight. The incubatory stage of the disease is probably about a fortnight.

The *post mortem* appearances of the lungs are remarkable and characteristic. In the first stage the lungs are but slightly increased in weight or size. They contain infiltrated serum, more or less in quantity; occasionally a little blood is found in the bronchi, which has escaped from ruptured capillaries. A little lymph is generally found between the pleuræ, but the adhesions between the costal and visceral pleuræ are very slight.

In the second stage the trachea generally contains false membranes, and the smaller bronchi are obliterated, and much destruction of parenchyma takes place; many of the blood-vessels are blocked up with lymph or coagulated blood. A most serious structural alteration takes place in the case of the lymphatic glands; they undergo fatty degeneration, and at the same time become enormously distended from the deposition of lymph. The pleuræ become more and more adherent to each other, owing to the more cohesive and compact nature of the exuded lymph. In some cases the effusion of serum into the cavity of the chest is enormous; on one occasion we have known it to measure more than two gallons.

The lungs now become partly hepatised. The pulmonary lobules acquire a reddish-brown hue, and, being cemented by layers of lighter coloured dense lymph, present a mottled appearance, not unlike that of Sienna marble. The pathological lesions observed in this disease, beside those referred to, are cardiac pleuritis, and ulcers of the stomach and lower intestines.

In the last stages of the disease the smaller bronchi can no longer be seen, the windpipe becomes narrowed, a large portion of the lungs loses all its structural characters, blood-vessels disappear, the lymphatic glands are destroyed, the parenchyma becomes very dense, and the weight of the lungs is much increased. Pus is found in both the second and third stages, but not always in the second.

In the healthy ox the lungs weigh about 14lbs.; in cases of pleuro-pneumonia they generally are more than doubled in weight. When reading a paper upon the subject of diseased meat, at a meeting of the Medical Society of the College of Physicians, in 1871, I exhibited the lungs of an animal that had died from pleuro-pneumonia; they weighed a little over 100 lbs. The effused serum contains bacteroid bodies of a very active character, judging by the

vivacity of their movements. In general one lung is much more largely hepatised than the other.

IS THE FLESH OF ANIMALS AFFECTED WITH PLEURO-PNEUMONIA FIT FOOD FOR MAN?

In the abstract it does not seem likely that the flesh of animals suffering from so serious a disease as pleuro-pneumonia is fit for human food. The malady is the result of a blood-poison; the animal is in a highly febrile condition, and its lungs—the great purifying agents of its system—are rendered more or less incapable of performing one of their functions, namely, the purification of the blood. It is alleged that even in the advanced stage of the disease no pus can be detected in the blood; but every experienced histologist knows how difficult it is to discriminate by the aid of the microscope between the colourless corpuscles of the blood and pus corpuscles. It is further alleged that no injurious effects have been traced to the use of such flesh, but it is clear that under existing circumstances, direct evidence as to its unwholesome properties is not likely to be obtained, and for the following reasons:—In the first place the owner of cattle which are affected with this disease does not eat their flesh, neither, as a rule, do his servants. The diseased animals are often slaughtered and buried. Sometimes they are sold to butchers, who take good care not to inform their customers that they are vending diseased meat. We have never met with any one yet who admitted that he had eaten the flesh of animals affected with contagious lung disease, though we have heard that persons have made such an avowal. We do not believe that the flesh of oxen affected with this malady is an immediate poison; it does not act like arsenic or strychnine. If it be a poison at all it is a slowly acting one. In this respect it resembles water which, though foul, nevertheless does not contain the poison of a specific disease. Such water produces diarrhœa and other maladies, but as a rule not in all cases, and generally only when used for some time. And as impure water, drank for years with apparent impunity by many persons, occasionally causes severe symptoms when a single draught of it is taken by a particular individual, may it not be that the flesh of animals affected with pleuro-pneumonia occasionally produces sudden and severe disease in individuals, though the great majority of its habitual consumers may enjoy apparent immunity from its toxic properties?

There is, however, evidence that the flesh of cattle affected with

pleuro-pneumonia has produced disease in man. That eminent veterinarian and pathologist, Professor John Gamgee, states[a] that in a convict establishment, in which the flesh of animals affected with pleuro-pneumonia was constantly consumed, there occurred from 40 to 50 carbuncles per month amongst 1,520 persons. On the discontinuance of the use of diseased meat the carbuncles ceased to appear.

According to the Registrar-General of England, the deaths from carbuncles and phlegmons have increased enormously since the introduction of contagious lung distemper into England thirty-five years ago. *Apropos* of this statement it is worth noting that boils, anthraces, and carbuncles have, during the last few months, been exceedingly common in Dublin. This is significant, for during that period the North Dublin Union Board of Guardians have been most active in selling, or at least in permitting to be sold, carcasses of oxen affected with pleuro-pneumonia to the Dublin butchers.

In November, 1860, Dr. Letheby, Medical Officer of Health for London, traced to the use of one quarter of beef the illness of 66 persons, of whom one died. The cow from which the meat had been obtained had been affected with pleuro-pneumonia, and the meat had been made into sausages; but Dr. Letheby found that this had been done whilst the meat was quite fresh.

According to the late Dr. Livingstone, Europeans and natives who used the flesh of oxen affected with pleuro-pneumonia suffered severely from malignant anthrax. It has lately been asserted that Dr. Livingstone mistook the disease, and that it was really a carbuncular, or anthrax fever, because he speaks of the same disease in connexion with the horse. As carbuncular fever and pleuro-pneumonia are very dissimilar diseases, it is strange that the doctor, one of the most acute of observers, and the holder of a surgical diploma, should have confounded them. It is remarkable that he terms the disease peripneumonia, a term applied to contagious lung-disease by the German veterinarians. Our opinion is that Dr. Livingstone knew perfectly the nature of the disease. He mentions at the same time the existence of an epidemic of lung disease amongst horses. As the bovine contagious pleuro-pneumonia is incommunicable to the horse, it has been urged that Livingstone was also mistaken in his account of the disease of the horse. It is probable that the severe catarrhal influenza, accompanied with

[a] Fifth Report of the Medical Officer of the Privy Council. First Series.

typhoid fever and lung complications, to which the horse is liable, was the disease described by Livingstone, for that malady is contagious. Nothing can be clearer than that Livingstone referred to two malignant diseases, one affecting the ox, the other the horse,[a] and both chiefly expending their venom upon the lungs. Unless the lung complaint in the former animal was the non-contagious pleuro-pneumonia—which is highly improbable, as that disease never assumes an epidemic form—it was really what Livingstone described it—namely, the peripneumonia of the Germans.

Persons constantly complain to us that they have been made unwell by eating what they consider to be diseased meat. Sometimes the meat is putrid; occasionally it is quite fresh, but possesses a loathsome odour, and some or all the characteristics of diseased meat; an odd time the meat *appears* to be perfectly healthy. At least 100 persons have made complaints to us with respect to the quality of meat—nearly always beef—and which they alleged had caused them nausea and severe diarrhœa. We are perfectly satisfied that many cases of diarrhœa and of other diseases result from the use of diseased meat, but as the diseases generally make their appearance after the bad meat has been consumed, it is all but impossible to trace effect to cause in such cases.

[a] As an example of the severe epidemic diseases affecting its lungs, to which the horse is liable, we may quote the following description of a malady which lately prevailed amongst horses in Virginia (Supplement to *Scientific American*, October 6th, 1877, page 1465):—

"A want of spirit in the animal is the first indication; then weakness in the legs and glassy appearance of the eyes. Soon the sight becomes impaired; frequently they become blind; with rapid and sometimes short laboured breathing—the breath very offensive. Restlessness marks the earlier stages of the disease; the legs become weak, stiff, and partly paralysed; the animal staggers and desires to lean against something for support. Restlessness gradually yields to a disposition to stand rigidly upon stiff legs. They resist and seem to loathe to lie down, but when down they seldom rise again, and death ensues rapidly with a spasm—sometimes breaking out in a profuse sweating. Cold extremities attend the latter stages of the disease. The pulse ranges from 56 upwards—not full, but weak. The bowels are constipated, and the animal appears completely prostrated from the very beginning.

"The *post mortem* examination develops the lungs badly congested—generally but one, the right one. They are very offensive, and the air-vesicles, on compression, exude a yellow fœtid matter, indicating the second stage of pneumonia. They are so affected that, upon the slightest pressure, the finger passes through them. The liver is sound and healthy, though this is a malarial section. The pericardium is filled with a yellow liquid. All the membranes of the brain are badly congested. The most marked feature of this disease is that there is no cough attending the highly congested condition of the lungs."

PROOF AS TO THE INNOCUOUS NATURE OF PLEURO-PNEUMONIA BEEF.

Those who maintain that the flesh of animals affected with pleuro-pneumonia is perfectly wholesome food have not given us any satisfactory proofs in support of their position. They state that thousands of such animals have been used as human food, and that no ill results have accrued therefrom. Such evidence is anything but conclusive. They have not undertaken any special experiments upon themselves for the purpose of proving whether or not diarrhœa or any other complaint would result from the *prolonged* use of this kind of flesh. Some of the guardians of the North Dublin Union have signalised themselves by their advocacy of the sale of diseased carcasses of beef. It is to be regretted that they did not offer themselves as the subjects of crucial tests, whereby the problem—"Is pleuro-pneumonic beef wholesome or not?"—might have been solved. If a certain number of them had been fed with pleuro-pneumonic beef for say one month, the results, whether negative or positive, would have been useful, and might materially have contributed to the solution of a difficult question. Clearly the *onus probandi* to prove that the flesh of *diseased* animals is wholesome food rests upon those who assert that it is so. Loose and general statements are not sufficient for that purpose. It must be shown that a sufficiently large number of persons had for a reasonably long period of time been fed with such meat (with due proportion of other and admittedly wholesome food) without sustaining any injury thereby. Until, by some such crucial tests, the wholesome character of the flesh of animals affected with pleuro-pneumonia is proved to a certainty, the general public may well be excused for objecting to use such flesh as food.

A LESSON FROM THE "PEARL-DISEASE."

A malady affecting oxen, and termed "Pearl-disease," has long been known on the Continent. In the last century a popular belief arose that pearl-disease was identical with syphilis in man. People refused to eat the flesh of the animals affected with this complaint, and the use of it was prohibited by the authorities in Germany, Austria, and other countries. In 1782, Heim, a German physician, proved that there was no relation between pearl disease and syphilis, and two years later Graumann published a treatise in which he agreed with the opinion of Heim as to the innocuous

character of the flesh of animals affected with pearl-disease. The restrictions in reference to the sale of such flesh were consequently removed in the course of a few years by all the States on the Continent. The dislike of the people to eat the flesh of animals affected with the pearl-disease continued, however, unabated, notwithstanding the medical testimony as to its innocuous character—and in this matter, as in so many others, the human instinct has been proved to be right. The admirably conducted experiments of Professor Gerlach, of the Berlin Veterinary School, Professor Leisering, of the Dresden Veterinary School, and Dr. Klebs, have shown that pearl-disease is of a tubercular nature. They have shown that animals who eat the flesh of animals affected with tuberculosis are very liable to contract that disease. Experimental results have proved that the milk of animals having pearl or other tubercular disease is capable of propagating tuberculosis. Tubercle, therefore, is highly infective, and as the most deadly form of phthisis in man is tuberculosis, it must sometimes happen that the milk and flesh of cows with tubercular disease give rise to the same disease in man.

Now it is only quite recently that the poisonous nature of the flesh of tubercular oxen has been ascertained, though nearly a century ago medical men asserted that it was a wholesome food. May not the aversion which people now have to eat the flesh of pleuro-pneumonic oxen be founded upon as true an instinct as that which led the Germans and Scandinavians to loathe the meat furnished by animals suffering from the "Pearl-disease?"

There are medical men who consider that the flesh of animals, even in an advanced stage of pleuro-pneumonia, may be eaten with impunity. A much larger number consider that it can only be safely used in the early stage of the disease. Lastly, the great majority of physicians believe that the flesh of such animals is, under all circumstances, unfit for the use of man.

In September, 1877, the Public Health Committee of the Corporation of Dublin addressed, at our suggestion, a circular letter to every medical man residing in the City or County of Dublin, whose name was on the Medical Register, or who was known to be a resident in the City or County, the following Queries:—

"1st.—Do you consider the flesh of oxen killed whilst suffering from contagious pleuro-pneumonia fit for food for man?

"2nd.—If you consider that such flesh may be used under certain circumstances, please state whether or not it is fit for food in the

second stage of the disease, in which the lungs are usually much increased in size, partially hepatised, and sometimes more or less infiltrated with pus ?"

257 replies were received, 121 of the circulars were returned,[a] through the post office, and no replies were received in 203 instances.

Out of the 257 forms of reply returned to the circular, there were seven on which the writers stated that they would not express any opinion upon the subject (one respondent stating that he would do so on receiving a fee).

Out of the 250 medical men who expressed opinions upon the subject, 220 replied in the negative to both queries. That is, 88 per cent. of the 250 medical men who replied were of opinion that the flesh of animals affected with pleuro-pneumonia was under no circumstances fit food for man.

The circular letter was also addressed to the Medical Officer of Health of every town of more than 20,000 inhabitants in the United Kingdom. There were received 75 replies; four of the Medical Officers of Health declined to express any opinion upon the subject; 56 were of opinion that the flesh of oxen affected with pleuro-pneumonia was unfit for food, and 15 considered that it might be used under certain circumstances. The great majority of the Dublin medical men and the Medical Officers of Health who stated that the flesh of pleuro-pneumonic oxen might be used as food, considered that in the second stage of the disease it was unfit for use.

We admit that there exists but *little* direct evidence that the flesh of oxen affected with contagious lung complaint produces disease in man ; but we maintain that *no* evidence of a reliable nature can be adduced to prove that it does not produce bad effects sometimes. Under these circumstances, we are necessarily obliged to form an opinion as to the fitness of such flesh as food for man upon general principles. The question is purely a medical one, and one upon which medical men may reasonably express an opinion. The returns to the circulars to which we have referred are sufficiently numerous to show that the opinions of the great majority of medical men are against the use of such flesh under any circumstances.

[a] They had no doubt been addressed to young medical men who had but lately registered their qualifications, and had subsequently left Dublin.

INDIVIDUAL OPINIONS AS TO THE UNFITNESS OF THE FLESH OF PLEURO-PNEUMONIC OXEN AS FOOD.

Samuel Gordon, M.D., President of the King and Queen's College of Physicians in Ireland, says :—" I cannot think that the flesh of animals suffering from contagious pleuro-pneumonia can be used under any circumstances."

Robert M'Donnell, M.D., F.R.S., President of the Royal College of Surgeons in Ireland :—" Nothing would induce me (if I knew it) to eat the flesh of an ox killed whilst suffering from contagious pleuro-pneumonia. My objection, I admit, is merely an instinctive and insuperable prejudice."

William Stokes, M.D., D.C.L., LL.D., F.R.S., Regius Professor of Medicine, T.C.D., Physician to the Queen in Ireland :—" I do not consider such flesh fit food for man *under any circumstances.*"

George H. Porter, M.D., ex-President, R.C.S.I., Surgeon to the Queen in Ireland, and Senior Surgeon to the Meath Hospital:—" It is absurd to suppose that the flesh of an animal suffering from a fever like contagious pleuro-pneumonia could be fit for food. No doubt (like other toxic agents) it does not always produce bad effects, but that is no reason why it should be used."

Richard G. Butcher, M.D. (Hon.), T.C.D., ex-President R.C.S.I., Lecturer and Examiner in Operative Surgery, T.C.D. :—" It is opposed to common sense to suppose that the flesh of an animal suffering from a serious fever, such as contagious pleuro-pneumonia is, could be wholesome food for man."

Edward Hamilton, M.D., ex-President, R.C.S.I., Surgeon to Steevens' Hospital :—" I consider that it is *not* fit food for man. The flesh must be affected by the blood supplied to it. In this case the blood has to pass through the lungs charged with the virus of contagion. It is difficult to understand how muscular flesh, supplied with nutrition from such a source, can be wholesome food."

T. W. Grimshaw, M.A., M.D., Fellow and Censor, K. & Q.C.P.I, Diplomate in State Medicine (Dub. Univ.), Physician to Steevens' and Cork-street Fever Hospitals ; co-Author of " Manual of Public Health for Ireland :"—" I consider the pleuro-pneumonia of cattle to be a form of specific fever of which the chest affection is but a local manifestation; it bears the same relation to the fever that sore throat does to scarlatina, inflammation of the membranes of the spinal cord to malignant purpuric fever, or

ulceration of the intestines to enteric fever. Under these circumstances, I consider the whole animal is impregnated with disease from the first development of the fever, quite irrespective of the condition of the animal's lungs.

"It has only been *proved* in a few instances that contagious diseases among animals are communicable to human beings, but these cases are quite sufficient to suggest that many other forms of disease are also communicable from animals to man. There are also good grounds for believing that certain diseases in animals may produce, by contagion, diseases in man of a nature differing materially in progress and symptoms from those developed in the animals from which the contagion emanated, and *vice versâ*. Such results have been found to take place in particular instances.

"It has been argued by some of those who consider the flesh of diseased animals fit for human food, that the processes of cooking, to which nearly all flesh meat is subjected before being consumed by civilised man, are sufficient to destroy the virus of any contagious particles contained in the flesh. This argument cannot be admitted, and, if admitted, it must be applied to the flesh of glandered animals, trichiniferous flesh, and many other forms of diseased flesh, which no one has yet ventured to suggest should be consumed for food. However it is not yet proved that ordinary cooking processes do destroy contagion, and it is a notorious fact that large quantities of food are consumed without being sufficiently cooked.

"Under all circumstances I consider it not only inadvisable, but running a serious and unknown amount of risk, to permit the use of the flesh of diseased animals for food.

"I may add that there are good grounds for believing that a disease very analogous to the contagious pleuro-pneumonia in animals is met with in human beings, and occurs in epidemics. This disease I have named '*pythogenic pneumonia*,' and, in conjunction with Dr. J. W. Moore, have written a special memoir as to its nature and causes, in *The Dublin Medical Journal* of May, 1875. The evidence of such a disease among human beings makes it the more important that every care should be taken to guard against its being propagated by contagion, either from animals to man or from man to animals."

W. B. Richardson, Fellow and Senior Examiner, Royal College of Surgeons, Surgeon to the Adelaide Hospital:—"I consider that the flesh of an animal killed whilst suffering from contagious pleuro-

pneumonia is not fit food for man, because there is every reason for the belief that this form of pleuro-pneumonia does not depend solely upon ordinary atmospheric causes, but rather upon the presence of a specific poison which has entered the system of the animal and caused changes in its circulating fluid, having for their result the thoracic inflammatory action.

"As the pleuro-pneumonia, according to this view, must be considered a secondary process, effected by the presence of a poison, which has led to some mysterious alterations in the living molecular structures of the engaged parts, and which, in their turn, have acted upon the blood-vessels of these parts, and caused the secondary phenomena of the pleuro-pneumonia, I cannot recommend the flesh of oxen killed while suffering from contagious pleuro-pneumonia as fit food for man, the poisoned blood being present in all the tissues of the animals.

"The non-professional reader may be here reminded that the poisons of the zymotic diseases to which man is liable have a predilection for concentrating their action on certain tissues of the body, so that there would be nothing exceptional in the pleuro-pneumonia of the ox following the same rule.

"I do not think that such flesh should be used under any circumstances; and as I consider the presence of a primary poison a sufficient cause for the rejection of the flesh, its use must be still more objectionable when infiltration of pus has taken place, from the liability of the tissues to additional contamination by the pyæmic poison, whatever that may be."

S. M. MacSwiney, M.D., F.K. & Q.C.P.I., Professor of Medical Jurisprudence, Catholic University:—"Such flesh is, in my opinion, totally unfit for human food. We know that the milk of cows pasturing on poison plants may poison whomsoever drinks it; that the flesh of sheep feeding on deleterious herbage, and the honey of bees derived from poisonous flowers, have produced serious and even fatal results in man. We know that diseased animal matter applied externally, and thus absorbed, has often produced severe effects. From this we may infer that where a malignant disease has caused death in an animal, the blood must be greatly depraved; as a consequence, it is highly probable that a virulent animal poison is formed, and the flesh impregnated therewith. And this inference is supported, if not confirmed, by many well-observed and recorded facts."

Evory Kennedy, M.D., Ed. and Dub., ex-President of the

King and Queen's College of Physicians:—"I do not consider the flesh of animals contaminated or surcharged with typhoid inflammation of the lung or any other organ, and which partakes of the same character as typhoid or diffused inflammation in the human subject, as fit for human food *at any stage*, but least of all is it so fit when the stage of purulent infiltration has been arrived at.

"I am aware that there is a distinction drawn between *common poisons* and *relative poisons*, and that it is stated that the poison of the viper, and possibly even that of a creature poisoned by hydrophobia, has been taken, or may be taken into the stomach with impunity. But I should not like to follow such examples, and consequently cannot approve of the use of the flesh of animals surcharged with a fatal poison, as food for man, and certainly should not eat it myself."

Thomas Hayden, late Vice-President of the King and Queen's College of Physicians:—"Most certainly I do not consider it fit for use in any stage of the disease, but positively dangerous when the lungs are infiltrated with pus."

John Wm. Moore, M.D., and Diplomate in State Medicine, Dublin University, F.K.&Q.C.P.I., Physician to the Meath Hospital, co-Author of "Manual of Public Health for Ireland:"—"No; because (to borrow the words of Dr. A. Wynter Blyth, author of 'A Dictionary of Hygiene and Public Health') I believe the 'contagious,' or 'epidemic pleuro-pneumonia of cattle' to be 'a blood disease; that some poison is taken into the blood, and that it culminates in the pulmonary tissues, the pulmonary air-cells being in this case the seat of election, just as in typhoid fever the bowels, in hydrophobia the spinal cord, and in small-pox the skin, are the organs to which, in some mysterious way, the poison determines, and in which it fructifies.' Although Dr. Blyth is speaking in this passage of acute croupous pneumonia in man, I am of opinion that his description is in every particular applicable to the epidemic pleuro-pneumonia of cattle—a disease which is closely and strikingly analogous to 'pythogenic pneumonia,' an affection described by Dr. Grimshaw and myself in *The Dublin Journal of Medical Science* for May, 1875. This analogy has been observed by many distinguished pathologists and sanitarians. Thus, Dr. Parkes observes:—'Considering that the pleuro-pneumonia of cattle is propagated through the pus and epithelium-cells of the sputa passing into the air-cells of other cattle, that even in man there is evidence of a pneumonia or phthisical disease being con-

tagious; the floating of these cells in the air is worthy of all attention.' The same writer, while he gives a doubtful opinion as to the injuriousness or otherwise of the flesh of cattle which have suffered from pleuro-pneumonia, remarks that '*it is hardly possible that the flesh should not be seriously altered in composition*' ('Manual of Hygiene,' 3rd edition, page 192).

"On the ground, therefore, that the blood is deteriorated in the pleuro-pneumonia of cattle; that, consequently, the various tissues supplied by the vitiated blood are altered from a healthy to a diseased state, I unhesitatingly answer the first, and necessarily the second query, in the negative."

A. H. Jacob, M.D., F.R.C.S.I., editor of *The Medical Press and Circular*:—"Decidedly not. I am aware that individuals may submit themselves to the pleuro-pneumonic poison—as they may to other hurtful agents—without being actually ill therefrom; but I am distinctly of opinion that such cases are exceptional, and that the blood-poison contained in the diseased meat must do harm in the majority of cases."

Thomas P. Mason, M.B., F.R.C.S.I, Lecturer on Anatomy, Ledwich School of Medicine, Physician to Mercer's Hospital:—"I do not, for the following reasons—the lungs are important organs to purify the blood from carbonic acid and other impurities; these structures (the lungs) being diseased, the blood, in the exact ratio of the diseased state present, will pass through the tissues (the flesh) in an imperfect state, depositing compounds calculated, I believe, when used as human food, to develop an unhealthy condition of the living system."

Jolliffe Tufnell, ex-President of the Royal College of Surgeons in Ireland, and ex-Regius Professor of Military Surgery:—"I consider that pleuro-pneumonic flesh, *in any stage of the disease*, is unfit food for man, as the blood, which necessarily remains after the most thorough bleeding, must contain the specific poison of a contagious disease."

J. G. Burne, L.K. & Q.C.P.I., M.R.C.S.E., Consulting Sanitary Officer, North Dublin Union:—"I am of opinion that the flesh of animals suffering from pleuro-pneumonia would be very likely to cause diarrhœa or anthrax."

D. F. Buckley, A.B., L.K. & Q.C.P.I., L.C.P. & C.S., Ed.:—"A few persons—I am glad to say, for the credit of humanity, that they are very few—insist that the flesh of cattle suffering from this distemper is fit for human food, *because* it shows no appearance

of alteration by disease; forgetting, or rather perhaps not knowing, that there may be textural and functional alterations without any physical appearances. Now, pleuro-pneumonia is undeniably a contagious disease. None of those wiseacres, I believe, question its communicability. In fact, so much are they afraid of its spread, that they at once resort to the unscientific process of killing the animal affected by it. And yet they are not ashamed to say such flesh may be incorporated with the human frame without injury! Every throb of the heart of an affected animal sends throughout its body a wave of blood, which, instead of having been filtered in the lungs, has been therein rendered still more impure by contact with the diseased organs, and by washing off and carrying along, in its tide, some of the morbid matter. The tissues in every part of the animal's frame draw their nutriment from this feculent flood, become imbued with it, and receive tainted molecules to supply the place of their effete particles. They are thus seriously affected long before they exhibit any visible appearances of change—that is to say, before their functions are sufficiently perverted to react upon the textures so far as to produce palpable alterations in them. To say, therefore, that the absence of striking alterations in the flesh of an animal slaughtered while suffering from a contagious disease, which has its origin at the very fountain of life itself is a proof that it is fit for human food, is like asserting that a glass of water which contains a fatal dose of some deadly poison is good for health because it is fair and sparkling! If one or two of those persons who are so loud in insisting upon the wholesomeness of such food, would show that they are impelled, not by interested or parsimonious motives, but by pure benevolence, or perhaps the possession of some occult knowledge peculiar to an acquaintance with cattle, I know of no better *experimentum crucis* than their publicly eating some of this condemned meat *pour encourager les autres*. I do not, however, advise this, nor do I think their faith strong enough to urge them to do so. If they did, they would experience severe pain and colicky cramps in the bowels, tenesmus, cold sweat all over the body, giddiness, feeling of impending dissolution, faintness, deprivation of sight, and even loss of consciousness. Should the natural vigour of their constitution or prompt medical treatment save them from death by the help of repeated vomitings and a brisk diarrhœa, they will be "sadder and wiser men" for the remainder of their lives; but if they should unhappily perish, their memory will doubtless be perpetuated by the inscrip-

tion of their heroism in the annals of cow-therapeutics and the books of poor-law literature. The symptoms I have mentioned are those which occurred in a case recently

> . . . . . Quæque ipse miserrima vidi,
> Et quorum pars magna fui:

and in which, on mature investigation, no other cause could be found than the use of beef, well-cooked, apparently sound, and purchased at a respectable butcher's in Blackrock. My observation and experience, fortified by those of other physicians, on the subject of blood poisoning, induce me to believe that society is not sufficiently protected, but that, on the contrary, some—perhaps much—of this diseased meat is unsuspectingly bought and consumed by the public to their grievous detriment."

Isaac Ashe, M.D., Physician, State Lunatic Asylum, Dundrum; author of various prize essays:—"I regard contagious pleuro-pneumonia as corresponding, not to simple pneumonia in man, but to typhus, with lung complications; and hence would consider the flesh unwholesome at any period of the disease."

It was stated at meetings of the North Dublin Union Board of Guardians that the carcasses of oxen affected with pleuro-pneumonia and slaughtered under the provisions of the Contagious Diseases (Animals) Prevention Acts were openly sold in England. From returns received in answer to the circulars sent to English and Scotch Health Officers, it would seem that there was *some* justification for this statement; but it would appear that the immense majority of Medical Officers of Health in the United Kingdom are opposed to the use, as food, of these carcasses in every stage of the disease. Most of them have expressed very strong opinions upon the subject.

Dr. Sedgwick Saunders, Medical Officer of Health for the City of London, states "that reason, analogy, and common sense suggest the entire unfitness for human food" of such carcasses, and he adds "that the persons who attempt to dispose of them in London are always and successfully prosecuted."

Dr. C. M. Tidy, Medical Officer of Health for Islington, and co-Author of one of the largest manuals of Forensic Medicine published, states:—"I hold as the result of a very large experience (for six years of my life I spent from 8 to 10 every morning examining carcasses) that you are never safe unless you lay down one general law—viz., "*That the flesh of all animals suffering from disease is unfit for human food.*" You say such food is often eaten, and no

harm comes from it. Granted; but we have too much evidence to show that *harm may* come from it. (*a*) Gamgee has shown how in a convict establishment of 1,500 convicts, where animals suffering from pleuro-pneumonia were eaten, forty or fifty cases of carbuncle occurred per month, and only stopped when the meat was altered. (*b*) Deaths from carbuncle in England have been gradually increasing from 1842, when the pleuro-pneumonia in animals was first imported from Holland. (*c*) The same is true according to the Registrar-General of Scotland, since lung disease made its first appearance there. I confess the evidence is scanty, but the onus that it does no harm rests with those who make the assertion. Take it in two ways:—1. Feed those butchers on it who assert its wholesomeness; or, 2. Ask Government to hand the prisoners over to the safe keeping of experimenters (now they have robbed us of animals), so that we may feed them on pleuro-pneumonic meat, and note the results. I have always acted on this opinion as the only safe ground of action."

Dr. F. Vacher, Medical Officer of Health for Birkenhead, and whose writings on the nature of contagious diseases have secured for him a high reputation, makes the following observations:—"I am able to answer your first question—No; as I certainly do consider that carcasses affected with contagious pleuro-pneumonia, *as we ordinarily see them*, are quite unfit for human food. Still I think that at a very early stage of the disease it is possible that the meat may be wholesome. Practically, when the disease is epidemic, I should pass nothing in which pleuro-pneumonia is discovered."

Dr. D. Davies, Medical Officer of Health for the City, County and Port of Bristol, states:—"Decidedly not in any stage of the disease. Possibly no harm might arise from the use of it after being cooked at a heat exceeding 212° Fahrenheit, but as this could not be guaranteed if sold indiscriminately to the public, the sale of it for use as food should be absolutely prohibited. The heat in the middle of a joint undergoing the process of roasting is not sufficient to destroy zymotic germs. I have known vaccine lymph to retain its properties after being in the middle of a leg of mutton whilst being cooked. In a boiled leg of mutton it lost its properties."

Henry H. Vernon, M.D., Edin., Medical Officer of Health for Southport, says:—"Nothing has surprised me more than that it could ever have been a question whether the flesh of an animal suffering from a zymotic disease is fit for human food. In the case of an idiopathic or simple inflammation there *may* be a question,

though it is doubtful if inflammation of serous membranes ever occurs except in connexion with tubercular deposit or more or less septicæmia. How the flesh of an animal whose blood is the habitat of a malignant *contagium* in process of active multiplication, can be fit for food, I am at a loss to imagine."

J. Mitchell Wilson, M.B., Medical Officer of Health for Rochdale says:—"Pleuro-pneumonia is a contagious disease, affecting the whole body of the animal through the blood. The altered conditions of that fluid must affect the intimate structures of the flesh, and whether any contagious matter is there deposited or no, I believe the nutrition of the flesh is so injuriously affected as to allow of decomposition taking place more rapidly, and the bad effects of meat in this condition ought to be provided against by more effectual means than that of cooking, always more or less imperfectly done. The rule in this neighbourhood is to destroy the carcass of every animal which has pleuro-pneumonia."

M. C. Fenton, M.D., Diplomate in State Medicine, Trin. Coll. Dubl., Medical Officer of Health for Coventry:—"In the absence of direct evidence as to the effect of eating such meat, I would argue that it is calculated to be injurious to health. The disease, although manifesting itself in the pulmonary organs, cannot be confined to the thorax, &c., any more than scarlet fever or typhoid fever to the throat or bowels. Through the medium of the blood—the infecting germs or virus is conveyed to every tissue in the body, consequently the poison must be introduced into the body with the meat, probably, in an active condition, as we know that the infecting virus is capable of withstanding a very considerable amount of heat, so that it would not necessarily be destroyed by cooking."

OPINIONS OF STANDARD AUTHORS AS TO THE UNFITNESS OF PLEURO-PNEUMONIC BEEF AS HUMAN FOOD.

Most of the medical authorities are opposed to the use of diseased meat in any form.

The late Dr. Letheby, Medical Officer of Health for London, in his published works, asserts that it should not be used.

Dr. Parkes, F.R.S., in his "Manual of Hygiene," after weighing the arguments for and against the use of the flesh of diseased animals, is of opinion that pleuro-pneumonia renders flesh unfit for food for soldiers.

Dr. Taylor, in his "Medical Jurisprudence," says it is by no means improbable that among the poor of large cities the secret

sale of decomposed and unwholesome meat is a very frequent cause of disease and death.

Dr. Pavy, F.R.S., in his work on "Diet," says that it is only right to look upon such meat as unsafe and unfit for human food.

Drs. Woodman and Tidy ("Forensic Medicine," p. 546), condemn pleuro-pneumonic beef.

VETERINARY OPINIONS.

With respect to veterinary opinions upon the subject, very little need be said. Mr. Fleming, in his work on "Veterinary Police," is strongly of opinion that pleuro-pneumonia does not render the flesh of oxen unfit for food, and he does certainly make out a strong case in support of his views. Professor John Gamgee, the author of several works on veterinary subjects, is exactly of an opposite opinion. Some years ago, when the first real attempt was made in Dublin to prevent the traffic in diseased meat, an application was made to the whilom Lord Mayor (now Sir James Mackey), to order the destruction of the carcass of an ox affected with pleuro-pneumonia. The animal was in the first stage of the disease, and was a fine heavy beast. Dr. Mapother and ourselves made the application, and we were forcibly supported by a distinguished veterinarian, Professor Hugh Ferguson, her Majesty's Veterinary Surgeon, and now Director of the Veterinary Department of the Irish Privy Council. The application was granted. Upon that occasion Professor Ferguson informed us that he had invariably found pleuro-pneumonic beef to produce diarrhœa in dogs fed with it.

Circulars were sent by the Public Health Committee to the twelve veterinarians who are practising in Dublin and its suburbs. Six only replied—namely, Messrs. Josephs, Pallin, M'Henry, Allen, Francis, and Mason—all of whom considered the flesh of pleuro-pneumonic animals unfit for food in any stage of the disease.

Mr. W. C. Josephs, M.R.C.V.S., who, as an Inspector under the provisions of "The Cattle Disease Prevention Acts," has had great experience, says:—"I am of opinion that the flesh of oxen killed whilst suffering from pleuro-pneumonia is not fit for food for man, because I consider the entire system is poisoned by a peculiar virus for some period previous to the appearance of the disease in the first stage. I consider that the flesh of oxen suffering from pleuro-pneumonia in its second stage, in which you have a purulent secretion thrown out, to be not only unfit for food, but highly dangerous. During my professional connexion with the South Dublin Union,

as their Veterinary Inspector, I made some hundred *post mortem* examinations in cases of pleuro-pneumonia, but could not pass a single case in the second stage as fit for human food."

Mr. W. Mason states:—"After many years' experience in the treatment of cattle suffering from pleuro-pneumonia, I believe that the flesh of the animal is not fit for human food. I have opened and examined many animals after death; and, from what I have seen, it confirms my belief that the whole carcass is affected from the disease. I do not believe that such flesh may be used under any circumstances."

Mr. Charles Allen, M.R.C.V.S., observes:—"As contagious pleuro-pneumonia is known as a specific disease of the blood, which fluid has been circulating for a long time in the minute tissues of the body in a poisonous state, previous to any symptoms being observed, and as the change which take place in the lungs is simply due to their structure, I consider the flesh of such diseased animals unfit for human food, in the first or any stage of the disease."

Mr. James M'Kenny, M.R.C.V.S., in a long and very able letter, published in the Dublin *Freeman's Journal* for October 5th, 1877, combats the arguments brought forward in a report[a] upon the use of pleuro-pneumonic beef. The following is an extract from this letter:—"The indirect evidence quoted in the Report is—'That no case is on record wherein the flesh of cattle, slaughtered while suffering from pleuro-pneumonia in any stage, has been proved to give rise to disease in man, and this is not because the meat has not been extensively consumed. Authorities prove that the flesh of animals thus affected has been daily used in Paris for the last twenty years without any appreciable results.' And again—'On carnivores in the Zoological Gardens the meat has produced no perceptible effect.'[b] Now, in the first case, those who consumed the flesh of animals whose lungs were known to them to be in a putrid state, I have no hesitation in saying, the very first sight of them on some would be sufficient to act most effectually as an immediate emetic, and those who had a knowledge of what they were eating, if they afterwards suffered from indigestion, &c., would attribute it to the meat, and not to some vegetable, &c., which they also may have partaken of, which is often at present the case; and we would shortly have the medical testimony of thousands of cases

[a] A Report presented to the Cattle Trade Association by Doctors Macnamara, Macalister, and Reynolds.

[b] This kind of flesh is given only to the jackals, vultures, and other *carrion* eaters, but not to the Felidæ., &c.—C. A. C.

of diarrhœa, &c., resulting from its effects. I do believe at present it would be the last thing a doctor would attribute any case of illness to, simply from the fact that no one would buy it if they knew it, and the butchers do not label it 'Pleuro-Pneumonic Beef.' Therefore, such an argument at present is groundless; and it is simply madness to attach any weight to the effect of bad meat on carnivores, their digestive, &c., powers are so very different to those of man. Are the writers of the Report so satisfied with their inquiry as to be sanguine enough to take the responsibility of recommending hospitals and unions, &c., to be supplied with this 'perhaps harmless'[a] meat, or advise it to their patients? The consideration of the second part of the subject does not seem to have been much reflected on by the authors of the Report—"the destruction of such meat is a wasteful expenditure," &c. This is only supported with the supposition that the meat is proved in the first case 'perhaps harmless'[a] to human beings; but the fact of the history proving that it is a contagious and most fatal disease led the Government to think so seriously of the matter that they summoned a special meeting for the inquiry into the matter, and the result of the lengthened inquiries from various reasons led them to form a very different opinion, so much so that a Council Order for the compulsory slaughter of such animals was issued. Now, if these animals are slaughtered for human food under the present arrangements, what would be the result? Why, the purchaser, in examining the animal to ascertain its value, comes in contact with the virus, which is capable of remaining on his clothes for a considerable time, so that when he goes to fairs and markets he carries that with him which is capable of transmitting the disease to all healthy animals he comes in contact with; and then, should he purchase the beast, its dying breath, &c., saturates the butchers' and on-lookers' clothes with the virus, and they become thereby the means of perpetuating the disease. Now, if disease requires to be stamped out, this would not be the way to attempt it. In concluding, I will not sum up the evidence so as to prejudice anyone. I simply leave the foregoing facts for each and all to judge for themselves. Do they consider such meat fit for human food, and would they like to eat it themselves or give it to their families? And if so, is the saving of the flesh of one animal a wise or foolish course, as by so doing, most probably, the disease will be spread to many, and

[a] The words in the Report are—"perfectly harmless."—C. A. C.

thus be a considerable annual loss, or would the exterminating of the disease by the first loss be a profitable or a wasteful expenditure?"

MEDICAL OPINIONS IN FAVOR OF USING PLEURO-PNEUMONIC BEEF.

Loiset states (Reynal's "Traité de la Police Sanitaire," Paris, 1873) that during nineteen years, 18,000 oxen affected with pleuro-pneumonia were killed and used as food in Lille, without apparently producing ill effects—that is, the 150,000 inhabitants of Lille used annually nearly 1,000 carcasses of pleuro-pneumonic beef, without apparent injury. No evidence is, however, given as to the continuous use of this diseased meat by any particular individual, or by any community; and no doubt, during nineteen years, the 150,000 inhabitants of Lille suffered from anthraces, boils, phlegmons, and diarrhœa, for the cause of every case of which, or even of a small proportion of them, M. Loiset might have found it difficult to account.

Dr. Greenhorn, in a Report addressed in 1857 to the Board of Trade, states that he was not able to connect any case of disease with the use of the flesh of animals affected with "pulmonary murrain." Many other writers have made similar observations.

Staff Surgeon Nicolson and Assistant-Surgeon Ffrench assert that Kaffirs eat the flesh of animals of pleuro-pneumonic oxen without suffering ill effect therefrom.

Thirty medical men, residing in or near Dublin, in replying to the circulars sent to them by the Public Health Committee, stated that the flesh of pleuro-pneumonic oxen might be used as food. Of these, three (Drs. Colles, Wheeler, and Battersby) state that they had never known or heard of cases of illness caused by the use of pleuro-pneumonic beef. One doctor believes that unless the animal was killed within an hour after the appearance of the disease, the flesh was unwholesome. Dr. T. Collins believes that it might be used in the first stage if "well boiled." Dr. J. Eustace says it should only be used in the "very first stage." Dr. Knipe considers, with "thirty years' experience of the disease," that the flesh is poisonous in the second stage. "When pus is in the lungs," says Dr. Cloran, "I *know* it is dangerous." Dr. M'Cready asserts that it is unfit for use except in a "very early stage" of the disease.

Dr. R. Travers, Fellow and Professor of Medical Jurisprudence, King and Queen's College of Physicians, states that in the first stage of pleuro-pneumonia the flesh "may *probably* be quite harmless if *well cooked*." In the second stage, he says :—"The change

of structure in the lungs necessarily impedes the functions essential not only to the health, but to the life of the suffering animal ; the requisite purification of the blood becomes more and more imperfectly performed ; a condition of increasing deviation from the healthy state ensues, certainly in the fluids, and very probably in the solids as a consequence. In such circumstances, the processes of cookery can no longer be regarded as capable of rendering the flesh of the diseased cattle wholesome. It has been observed that the injurious effects of *spurred rye* when it has entered into the composition of bread are not averted by the process of baking. The *Sarcozoa of swine's flesh* have survived after subjection to various operations of cookery in which they were exposed to high temperatures, at least to that of boiling water, and have afterwards successfully resisted the digestive power of the human stomach, so as to be still capable of development within the living system, producing a peculiar and incurable disease. The *Wurtemburg sausages* furnish us with another instance, in which is exemplified a similar failure of the processes of cooking to prevent the fatal consequences referable to the use of a vitiated article of food. I therefore conclude that the flesh of cattle whose lungs present the changes of structure described in this query, and traced to the contagious pleuro-pneumonia, is unfit for, and ought not to be used as human food."

J. Roche, M.D., retired Surgeon-Major, H.M.I.A., writes strongly in favour of the use of the flesh of oxen affected with pleuro-pneumonia. He insists that the flesh, if well bled, cannot be distinguished microscopically from that of a healthy ox. He considers that there may be cases in which the flesh is fit for use even if pus were in the lungs. " The best test is that the beast has yielded up its blood *well*, and the next best is that of sight, touch and smell."

The Rev. S. Haughton, M.D., F.K. & Q.C.P.I., Professor of Geology, Trinity College, Dublin, states :—" I consider such flesh to be *frequently* fit food for man—I would judge the fitness or unfitness of such flesh from an examination of themuscular fibres, without any reference to local symptoms in the lungs. In many fatal diseases the muscular tissues continue unaltered for a long period, and while so may be safely used for food."

Dr. Frederick Pim considers that the flesh in the second stage of disease is fit for food if " properly cooked." This gentleman and Dr. Roche are the only respondents (out of nearly 350) to the

circular who consider the flesh of pleuro-pneumonic oxen fit for food in the advanced stage of the disease. We have seen the flesh of animals in an advanced stage of the disease become putrid within twenty-four hours after the death of the animal, notwithstanding that the carcass had been thoroughly bled. No amount of cooking could render such flesh eatable or remove its offensive odour.

In October, 1877, a Report was prepared for the Cattle Trade Association of Ireland by Dr. R. Macnamara, ex-President and Professor of Materia Medica, R.C.S.I., Dr. A. Macalister, Professor of Zoology, T.C.D., and Dr. J. E. Reynolds, Professor of Chemistry, T.C.D. No new facts are given in this report, but the reporters consider that the flesh of animals affected with pleuro-pneumonia may, in the early stages of the disease, be eaten with impunity. They do not, however, state at what period of the disease the animals' flesh becomes unwholesome. They acknowledge that the flesh decomposes sooner than that of healthy animals.

This report called forth a rejoinder from the Dublin Sanitary Association. A Report was drawn up by a sub-committee, consisting (amongst others) of Dr. T. Hayden, late Vice-President of the College of Physicians, Dr. Grimshaw, Dr. J. W. Moore, and the Society's honorary officers. This document, which is elaborate, concludes as follows :—"1. That epidemic pleuro-pneumonia is a specific contagious fever, and, therefore, affects the whole system of the animal, including its flesh and milk. 2. That the flesh of animals affected with the disease, except in the earliest stages, is known to present unhealthy appearances. 3. That the flesh is specially prone to become putrid, and, therefore, dangerous as an article of food. 4. That it is not known with certainty at what stage of the disease the flesh first shows sign of infection. 5. That there is no evidence of a scientific character to prove that the flesh of oxen affected with the disease has not produced injurious effects. 6. That there is some evidence to show that the flesh when eaten has produced injurious results. 7. That the proposal to sell the flesh at a reduced price, and to make it less prone to putrefaction by careful bleeding, is, if carried out, calculated seriously to endanger the health of the consumers, especially the poor, and to leave a loop-hole for the sale of all kinds of diseased flesh.

"We are, therefore, of opinion that the flesh of animals which have suffered from pleuro-pneumonia in any stage, should not, under any circumstances, be permitted to be sold for human food."

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE COLLEGE OF PHYSICIANS.

Samuel Gordon, M.D., President.

George F. Duffey, M.D., Honorary Secretary.

Wednesday, 14th November, 1877.

The President in the Chair.

Dr. G. F. Duffey, Honorary Secretary, read the Report of the Council.

The President delivered an Inaugural Address.

Dr. Hayden read a paper entitled "An Abstract of 330 Cases of Phthisis, with Observations on Symptoms and Treatment." [It will be found at p. 489.]

Dr. MacSwiney observed that it appeared to him that they were not yet in a position to classify the forms of phthisis any more than they were to classify skin diseases, or the varieties of poisons, in consequence of the pathology of those affections not being yet precisely determined. Dr. Hayden had omitted to state whether hæmoptysis preceded or succeeded the other symptoms of phthisical ailment. As regarded the decubitus observed by Dr. Hayden in the third stage of phthisis as the prevalent one, his (Dr. MacSwiney's) experience was that a patient suffering from an excavated lung for the most part reclined on the affected lung in order to afford greater scope for the play of the unaffected lung. He asked Dr. Hayden what was the percentage of recoveries in the cases he reported?

Dr. Henry Kennedy said he was glad to find that the views of Dr. Hayden appeared opposed to those of Niemeyer, who he (Dr. Kennedy) believed had done considerable mischief by his writings. Dr. Hayden had traced phthisis as following caseous pneumonia in only 8 out of his 330 cases. He (Dr. Kennedy) had always thought that they should not look on pneumonia as the starting-point of phthisis. He admitted that there were instances of it, but they were very exceptional. With respect to the cirrhotic form of disease he had seen and examined a con-

siderable number of cases of cirrhosis, and he believed the complication of tubercle with cirrhosis to be very exceptional. He looked on the cirrhosis described by Sir Dominic Corrigan as essentially distinct from tubercular phthisis, although the former was attended with hæmoptysis, and many other symptoms of the latter. In cirrhosis existing by itself there never was the striking hectic that tubercular phthisis exhibited. He did not believe that hæmoptysis in the case of a healthy man would engender phthisis. Where hæmoptysis was followed by phthisis, tubercle must (he thought) have been pre-existent in the lung. He believed that as a general rule pulmonary hæmorrhage was not connected with tubercular phthisis, or the cause of that disease. His experience was that in two cases out of every three the left side was the one affected, although he was aware that Laennec had maintained the opposite opinion; and if the two lungs were affected he believed that the left as a general rule had the start of the other. Pneumothorax was more frequent on the left side than on the right. He did not know that he had ever seen a case in which he was perfectly satisfied that tubercular phthisis existed, and in which a cure resulted, but he had seen a number of cases in which the disease was so far checked in its progress that the patient was enabled to resume his avocations. With respect to treatment he had found the hypophosphites most valuable. In fact he did not know anything better when the patient could bear tonics. On the other hand, when he could not, the hypophosphites should be used with care, for he had several times seen hæmoptysis directly resulting from their use. Cod-liver oil was a valuable remedy, but could not be always taken by the patient. Another valuable agent was uva ursi. He had often used it, and on a large number of cases had by means of it lulled the disease so that the patient lost the cough, gained flesh, and had left the hospital comparatively speaking well. He gave it in doses of from 5 to 10 grains of the powdered leaves.

Dr. Head observed that several forms of disease of the lungs were attended with excavations, sweating, wasting, and, in fact, precisely the same symptoms as tubercular phthisis, although no tubercle could be detected in them. Certain forms of pneumonia had those symptoms. Long ago he noted in an epidemic of measles that attacks of that disease were followed by phthisis; and he had since been alarmed at cases of measles occurring in delicate adults, especially girls. He thought phthisis might sometimes be traced to the blocking up of the minute bronchial tubes with tenacious mucous epithelial deposit analogous to that seen in the uriniferous tubes in kidney diseases following scarlatina, so much so that he had been inclined to term the condition desquamative bronchitis. It was important to look for the cause of phthisis. No doubt if it commenced with a deposit of tubercle, they could do little or nothing, but

where there was simple blocking up of the air-cells, a great deal could be done. In hospital cases one reason why recoveries were rare was because the patients belonged to a class who could not be placed under circumstances favourable for treatment. Their symptoms might be ameliorated, and they might be sent out of hospital in an improved condition, but the disease remained. He had met with many cases in which, in the early stage, all the symptoms of phthisis were present, and yet the patients permanently recovered, and not the smallest trace of the disease could be afterwards detected, either physically or constitutionally, except perhaps defective respiration in a small portion of the lung. Dr. Kennedy was, perhaps, right when he said that patients attacked with tubercular phthisis did not recover; but there were other forms of lung disease presenting all the physical signs of that disease except the tubercle in which recovery did take place.

Dr. Aquilla Smith observed that Dr. Hayden had not mentioned in how many cases in the female the catamenia were suppressed. It was important to note at what stage of the disease clubbed fingers occurred. He had seen many cases of phthisis in which the first alarming symptom was general wasting of the body.

Dr. Hayden, in reply, said that the circumstances under which he observed his cases rendered it impossible for him to note whether hæmoptysis occurred before or after the permanent symptoms of phthisis set in. Partial hæmoptysis he did not regard as a great evil. It was frequently the first symptom, and when copious was often regarded as the cause of the disease. The late Dr. Hughes Bennett had set down extravasation of blood into the lungs as a cause of the disease. With respect to decubitus, he (Dr. Hayden) had simply adduced his observations without speculation. He agreed with Dr. MacSwiney that in other forms of lung disease the decubitus was on the diseased side, in order to give play to the unaffected lung, which had to do double duty; but he reiterated that in 90 out of every 100 cases of phthisis that he had observed the decubitus in the third stage was on the unaffected side, because lying on the other side filled the cavity with pus and brought on cough. With respect to the percentage of recoveries he had been unable to note it, because he lost sight of all the cases except eight or nine. He did not regard cirrhosis of the lung as identical with tubercle. According to his experience cirrhosis and tubercle were very seldom associated. With respect to treatment, he confessed to a prejudice against hypophosphites, because their use had been introduced by a great quack. He agreed with Dr. Head that measles often led to catarrhal pneumonia and to phthisis; and he had also noticed that amenorrhœa was commonly an early symptom of phthisis in females.

The Society then adjourned to the first Wednesday in December.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

President—Thomas Hayden, F.K.Q.C.P.

Secretary—E. H. Bennett, M.D.

Inflammation of Left Vesicula Seminalis; Cystitis; Endocarditis Bacteritica; Secondary Abscesses.—Dr. Purser, in exhibiting the heart, bladder, and portions of the other viscera of a man who recently died in Sir P. Dun's Hospital, said: The patient from whom these specimens were taken was admitted into hospital on April 23rd, in consequence of a contusion of the left hip and thigh, caused by a horse having fallen on him two days previously. The injuries were trivial, and the patient presented no serious symptoms until the night of the 24th, when he became delirious. On the morning of the 25th I saw him for the first time. He was a large, powerfully-built man, of thirty to thirty-five years of age. He was in a most extreme state of depression. His face pale, tongue dry and brown, pulse very rapid and weak, respiration rapid, out of proportion to the rapidity of pulse; temperature 103°. There was constant muttering delirium. When questioned he complained of pain in the lower part of the right chest. Except some doubtful feebleness of respiration at the bases of both lungs posteriorly, no morbid physical signs were to be found in heart or lungs. In the course of the day a profuse sweat broke out all over the body. He passed urine in small quantities. It was turbid, contained no tube-casts, but blood, pus corpuscles, and masses of small granules, which resisted the action of strong acetic acid (micrococci). The dyspnœa increased steadily. Although constantly delirious, he complained, whenever he was asked, of pain in the right side. Late at night a distinct, although not loud, friction sound was audible, below and external to the right nipple. He died at nine o'clock on the morning of the 26th. The examination of the body was made six hours after death. There were no marks of bruises or other injuries of the surface. A small quantity of muco-purulent fluid exuded from the urethra. The left lung was totally adherent by old adhesions to ribs and diaphragm. It was very œdematous throughout, and the lower portion was quite airless, of a dark colour and tough consistence, and sank in water (atelectasis). The right lung was quite free from adhesions. The pulmonary pleura presented a great number of small ecchymoses, and the outer and posterior portion of the lower lobe of the lung was covered with recent lymph. In the lower lobe were several small nodules, for the most part at the surface, pyramidal in shape, solid, of a greyish red

colour (infarctions). The larger of these were circumscribed by a whitish zone of commencing suppuration. Over these spots the pleura was covered with lymph. The entire of the lung was œdematous, and the lower portion quite airless (atelectasis). There was no fluid in the pleura. Pericardium healthy. Its cavity contained about six ounces of clear yellow fluid. The right side of the heart was healthy. The aortic valves were thickened, and the posterior and right curtains were adherent to each other nearly as far as the Arantian bodies. The valves, although thickened, were competent to close the opening, and there could not have been very much obstruction, as no murmur was present during life. The mitral valves and the chordæ tendineæ were thickened, but they appeared capable of closing the orifice, which was not materially contracted. Besides this old disease there existed around the free edge of the mitral valves, at their line of contact, a continuous band of recent ulceration. This was quite superficial, had a greyish red colour, and about it the valves were reddened. There were no blood clots adherent to the surface of these ulcers. From the surface a granular matter could be scraped. This consisted, for the most part, of very minute spherical bodies occurring in masses, and which were unchanged by prolonged boiling in a mixture of alcohol and ether, and subsequent treatment with glacial acetic acid (micrococci). There was a small abscess in one of the musculi papillares, just under the endocardium. Otherwise the muscular tissue of the heart seemed healthy. The aorta was, for so large a man, unusually small, and its coats, although quite free from atheroma or other disease, were thin. When laid open it measured, immediately above the sigmoid valve, seven centimetres. Peritoneum healthy. Spleen large, soft, attached to diaphragm by old adhesions. It contained no infarctions or abscesses. The kidneys were enlarged—the left larger than the right. They were of an opaque, greyish appearance. There were several small abscesses in each. These were seated, for the most part, in the cortex, near the surface, but there were a few linear abscesses in the pyramids, near their bases. The mucous membrane of the pelvis and calyces was quite healthy. The bladder was empty. Its mucous membrane was congested, ecchymosed in spots, and contained a great number of abscesses varying in size from the head of a pin to a small pea. Near the neck were one or two very minute superficial ulcers. The disease of the bladder was confined to the posterior and inferior portion, and was manifestly recent. The left vesicula seminalis was healthy. The right was the seat of old inflammation. Its walls were thickened and ulcerated, and its cavities filled with thick unhealthy pus, in which numerous micrococci were found. The microscopic examination of this part was not made for some days after death, but the contents of the left vesicula gave no micrococci. The other parts were examined as soon as possible after their removal

from the body. On sections through the prostate, it was seen that the right ejaculatory duct was inflamed, and contained thick pus up to the point of its entrance into the urethra. The stomach was ecchymosed in its mucous coat, and contained a considerable quantity of grumous, bloody fluid. The intestines were very much distended with gas, and the large intestine contained a quantity of soft yellow fæces. The walls of the intestines were healthy. The liver was very large, smooth on the surface, pale in colour, and opaque. It weighed nearly six pounds. Its consistence was firm, but it presented neither amyloid, fatty nor cirrhotic change. The cells were large and filled with granules, which dissolved in acetic acid. The gall bladder was empty. The iliac and other veins, so far as they could be examined, were healthy and free from thrombi.—*April* 28, 1877.

Tumour of Supra-renal Body.—Dr. Walter Smith said: The tumour which I exhibit is of sufficiently rare occurrence to be worthy of record. It is a specimen of an unusually large tumour representing one of the supra-renal bodies, and was removed, in the course of last month, from the body of an elderly male subject, in the dissecting room. My attention was called to it by a student who was engaged in dissecting the abdomen. It formed a large, round, elastic tumour on the left side. At first it suggested the idea of a dilated cystic kidney, and distinct signs of fluctuation were perceptible. On closer examination, however, the left kidney was found to project behind it, flattened, and presenting an apparently normal structure. The dimensions of the tumour, in the recent state, were eight inches by three and a half, and it was embedded in a loose capsule of connective tissue. Crossing its anterior surface was a large vein, about the size of the little finger, which opened inferiorly and obliquely into the left renal vein, and was gradually lost in the wall of the tumour above. In addition to this vessel, numerous arteries of considerable size ramified over the surface of the tumour. The right kidney and its neighbouring parts were normal, as were also all the other abdominal viscera. The tumour was quite free from adhesions to adjacent parts. It was particularly noticed that no unusual discoloration of the skin existed in any region of the body. The tumour was carefully removed; and, in order to test whether it was cystic or not, two punctures were made, but all that escaped was a small quantity of brown, jelly-like fluid. The tumour was split longitudinally, and was found to be composed of two principal sacs, separated by a septum nearly an inch thick, and very vascular. The wall of the tumour was from one to three lines in thickness, and was composed of two strata, the outer one of a homogeneous red, resembling muscular tissue; and the inner one of a soft buff grey, like chamois leather. Off the large cyst were a number of small cysts, freely communicating with each other.

One of the smaller ones contained a quantity of grey jelly, and the large sac a gelatinous areolated mass. Some of the soft jelly was removed and examined in chloride of sodium solution by Dr. R. Harvey. It showed a multitude of lymphoid cells, many of them fatty, in a fine reticulum of fibres, possibly the result of coagulation. When portions of the wall in the recent state were teased out, they showed a number of large spindle cells. Portions of it were hardened and further examined by Dr. Harvey, who determined the main points to be as follows:—Sections through the wall showed it to be composed of three distinct zones. The outer of these contained a quantity of round-celled granulation tissue, while in parts there was a stroma of spindle-celled elements enclosing large cells, similar to, if not identical with, those met with in the cortex of the normal supra-renal capsule. The middle zone was fibrous, while the inner, which formed the wall of the cyst was composed of erectile tissue. So few opportunities occur of dissecting tumours of the supra-renal bodies, that there may be some doubt as to the exact nature of this one. Dr. Harvey's opinion is that the tumour was a metamorphosed supra-renal capsule, the wall of the cyst representing the cortex of the supra-renal body, and the cysts representing, probably, the medullary portion, which so readily undergoes softening after death. The tumour was, as to its original nature, probably a sarcoma of the supra-renal capsule, which had undergone a colloid cystic degeneration.—*April* 28, 1877

Hydatid Disease of the Liver.—Dr. Hayden said: I have the honour of bringing under the notice of the Society a specimen of a rather rare character—namely, an example of suppurating multiple hydatids of the liver. The history of the patient, a female, was this:—She was a soldier's wife, aged twenty-eight years, who had never been out of Ireland, and had always enjoyed good health up to a fortnight preceding the 8th of this month, when she was admitted into hospital. She stated that about two years previously she had been suddenly attacked with severe pain in the upper regions of the abdomen. It was very severe, and confined her to bed for about a week. On the occasion of the second attack, a fortnight before the date of admittance, she was engaged in cooking her dinner, when she was seized rather suddenly with severe pain in the pit of the stomach, and to the left of that point. This pain was excruciating, but she neither vomited nor had rigor. It lasted almost uninterruptedly from that time until the date of her admittance, a fortnight subsequently. She had, however, short intervals of comparative relief from pain. When I saw her on the 8th of this month her condition was as follows:—There was no jaundice, or emaciation, but she was unable to take food of any kind, and I may state that during the period of her residence in the hospital—from the 8th to the 26th of this

month—she literally took no food, living entirely on sips of brandy or whiskey mixed with water. She suffered excruciating pain in the epigastrium and left hypochondrium, which was so urgent that I was obliged to give her, hypodermically, full doses of morphia—from one-sixth of a grain to half a grain—in order to give her relief. In the abdomen, to the left of the ensiform cartilage, there was a remarkable prominence, which, as a very cursory examination sufficed to show, consisted in an enlargement of the left lobe of the liver. The right lobe was likewise evidently enlarged. Pressure on the left side of the abdomen caused severe pain, and on making strong pressure beneath the left costal border at the cartilage of the ninth rib, a distinct pulsation was felt. In this situation likewise two sounds were heard, which were distinct and sharp, whilst the sounds of the heart above were exceedingly faint. There was an interval between the situation at which the heart sounds were loudest and the situation of those sounds in the left hypochondrium. The question arose as to what was the cause of those paroxysms of pain. The woman was not emaciated; there was no pain in the back; and there was no jaundice. She was utterly without sleep, and could take no food. For several days I had a suspicion of abdominal aneurism. The symptoms which suggested aneurism were paroxysmal pain of a radiating character over the abdomen, the absence of emaciation and constitutional disturbance, the absence of fever and jaundice, the prominence of the left lobe of the liver, the pulsations on the left side of the abdomen, and the clear, ringing sounds, which were not transmitted heart-sounds. The prominence of the left lobe of the liver I was disposed to attribute to forward displacement by a tumour placed behind it. I did not, however, come to a definite conclusion on the point. On the 21st of this month the prominence was soft and yielding to pressure, and then I had no doubt that it was a case of abscess of the liver. The abscess was "aspirated," and a pint of thick pus removed. She experienced considerable relief from this procedure, and for three days was a great deal better, but was, nevertheless, constantly under the influence of morphia. On the 24th she vomited a quantity of bilious matter. On the night of the 25th she was attacked with diarrhœa. On the morning of the 26th she aborted, and was delivered of a four months' fœtus. There was some little hæmorrhage, and she sank within an hour after her delivery. To Mr. Horan, one of the residents, who watched the case with great interest, and made the *post mortem* examination, I am indebted for notes of the case. The liver is of great size, the left lobe being very much reduced in volume owing to the removal of matter, first by "aspiration," and subsequently by Mr. Horan in making the *post mortem* examination, about a pint of pus having then escaped. The spleen, stomach, and transverse colon were firmly adherent to the left lobe of the liver. When I made the diagnosis of abscess of the liver, I ventured to explain the

pulsation and the sounds in this way—that the abscess projected backwards and pressed upon the aorta, the sounds and pulsation of which were conducted to the surface through its medium. Such, manifestly, has been the case, the abscess having projected backwards and pressed upon the left side of the abdominal aorta. The cavity in the left lobe of the liver is multilocular, one of its compartments projecting in a great degree backwards. The right lobe of the liver presents a honey-combed appearance on section, owing to the presence of a great number of separate cavities or sacs. Several of these were very large, and contained a quantity of thick, greenish pus. The greater part of this, however, was washed out before the organ was sent here for examination. Dr. Gunn examined a portion of the contents of the loculi under the microscope, but he failed to find hooklets. The other viscera scarcely require particular notice. There is a good deal of fat in the mesentery and epiploic appendices. No history whatever of tapeworm could be elicited. It is well known to members of the Society that while hydatids of the ordinary kind are frequently met with in the liver, multiple suppurating hydatids are uncommon. That is the form of the disease in which a number of hydatids, dispersed through the organ, and not grouped together in a common cyst, undergo the suppurative process, each forming a distinct abscess. The rule in such cases is, that central suppuration is set up, and ultimately involves all the cysts of the organ. The excruciating pain suffered by the patient was probably due to local peritonitis. Dr. Bookey reports to me as follows, in reference to the foregoing case:—"I have examined the portions of the liver you left, but failed to discover hooks, although I washed the pus and examined with all care the sediment, and also made frozen sections. From the thick purulent contents, and the pits on the inner surface of lining membrane, also the laminated hyaline condition of membrane which I observed in places, I consider it to be a case of multiple, or rather multilocular, hydatid of the liver, suppurating, the cysts being sterile."—*April* 28, 1877.

Cerebral Glioma.—Dr. Henry Kennedy submitted a case of cerebral disease which was lately under his care in the Whitworth Hospital, Drumcondra. The patient was a female, about thirty-five years of age, and married. She was a nurse, and not too steady in her habits. In September, 1876, she was suddenly seized with hemiplegia affecting the arm and leg of the left side. The former shortly recovered itself, and the leg, to a great degree, but more slowly. At times she suffered from giddiness and headaches. She was soon after admitted into Sir Patrick Dun's Hospital, where any symptoms she then exhibited were of a singularly intermittent character. On some days she presented signs of what might be called pseudo-paralysis, and yet those had disappeared the following day. So matters went on till four months since, when she

came into the Whitworth Hospital. She then had hemiplegia, which, though slight, was marked. The arm was getting into a spastic state, and the patient frequently suffered from severe pain referred to the upper arm. All other symptoms were, so to say, negative. The tongue was protruded straight, the pupils were the same size and acted well; and there was no loss of either hearing, or smell, or swallowing. Shortly, however, she began to complain of headache, which was always referred to the right side of the head, and was attended with marked flushing of the face. Slight fever too came on at these times, and, when spoken to, it was observed that she answered very slowly; but no words were forgotten or misplaced. It seemed as if a considerable effort were required to collect her thoughts. During this period the temperature of the body was always below what was normal. On the sound side Mr. Wilson usually found it to be 93°, while on the other it was commonly a degree and a half lower. After about six weeks' sojourn in the hospital matters became much more serious. She got occasional vomiting; the headache was much oftener complained of, and was clearly of a severe character, and finally convulsive fits came on, during which she lost all consciousness. These fits were very like epilepsy, but, though she bit her tongue, she never screamed when taking them. While they lasted the face was deeply suffused, the pupils contracted, and the head was forcibly drawn to the left side—twisted round as it were. Out of this state she came very slowly. No albumen was found at any time in the urine. She had now two fits of crying. The diagnosis of the case was very puzzling, for it neither impressed one with the idea of there having been a sanguineous effusion, or its being one of embolism, or thrombosis. There was nothing wrong with the heart. Under the impression that the symptoms might be due to syphilis she got the hydriodate of potash in large doses. For a fortnight some little improvement did seem to arise from this treatment, but it was only temporary, and the symptoms already described became more severe and more frequent, and so she sunk. At the *post mortem* examination, made by Mr. Wilson, the brain alone could be examined. On raising the skull the dura mater was observed to be much thicker than usual, especially the upper part; while the entire surface of the brain was congested to an intense degree. But this was more marked in some places than others. The entire surface had very much the appearance of what is seen in the worst forms of typhus fever. The most marked feature, however, of the organ, as seen on the upper surface, was the difference in size between the two hemispheres. The right side (the opposite to the paralysed members) was very much less than the left; looked at both from before backwards and from side to side. On making the ordinary horizontal section it was found that the knife had, on the right or diminished side, divided a tumour which occupied the roof of the corresponding ventricle, leaving it, however, quite free. The tumour was oval

in shape, nearly three inches in length, by one and a quarter broad; it ran from before backwards, and, as just stated, occupied exactly the roof of the ventricle. The corpus striatum and optic thalamus were quite normal, and there was no softening round the tumour itself. If it be allowed that the corpus striatum presides over the functions of the opposite side of the body, the only explanation that could, in a case like the present be given is that the tumour, by its position, pressed on this particular part of the brain, and so affected its functions; and this view would account for what was observed shortly after the patient was seized with illness—for the symptoms were then of a very intermitting character, and made the diagnosis very obscure. It was tolerably certain too that, at times, the tumour caused a great efflux of blood round it, and that at such times the general symptoms became more marked. A microscopic examination, kindly made by Drs. Bennett and Purser, showed that the tumour was a very vascular glioma, and the tissue was so soft that a drop of water was sufficient to wash away all but the vessels.—*April* 28, 1877.

Disease of the Mitral Orifice; Presystolic Murmur.—Dr. Hayden said: As this is the last meeting of the session, I may be permitted briefly to advert to the following case. A child, aged twelve years, came under my notice in the early part of January of last year. She was very delicate, and apparently half-starved, and was the subject of mitral regurgitation. A loud blowing murmur could be heard in the ordinary position at the apex of the heart, but it was diffused over the entire chest. She was also suffering from bronchitis. After a short sojourn in hospital, she had relief from the bronchitis, and was able to leave. She again came under my notice in the course of the same year, and again got well and left. On the 25th of last month she was admitted for the last time. She was then universally œdematous, slightly jaundiced, suffering from extreme dyspnœa, and manifestly moribund. In the course of that night she died. In addition to the regurgitant murmur by which I was enabled to diagnose the existence of mitral regurgitation, on the second occasion of her coming into the hospital, there was a faint rub heard preceding the first sound of the heart, which I diagnosed as the presystolic murmur of mitral narrowing. On the 25th of the month this murmur was more distinct, and not only I but all the members of the class were able to identify it. The group of phenomena then audible were a murmur preceding the first sound, a sharp first sound, and a blowing murmur succeeding the first sound. I think this case settles conclusively a question which has been debated amongst clinical observers for some time—namely, whether, for the production of presystolic murmur, mitral narrowing is absolutely necessary, or whether mere roughening of the orifice is sufficient to give rise to it. The case before the Society, I think, proves that simple

roughening of the orifice, without narrowing, is capable of yielding this phenomenon. The left auriculo-ventricular opening is of the ordinary size. A portion of the auricular surface of the orifice, especially on the anterior surface, is remarkably rough, by deposit of granules of lymph. These little bodies extend into the auricle for about an inch from the orifice. The right anterior segment of the mitral valve is in a similar condition, remarkably thick and granular, and having a number of toothed processes. One of the tendinous chords has been ruptured, and attached to the broken extremity of it are several small masses of lymph. This, I doubt not, was the original cause of the regurgitation, and of the murmur—namely, the yielding of the edges of the valve and the rush of blood back into the auricle, consequent on rupture of one of the chordæ tendineæ. Subsequent attacks of endocarditis gave rise to further thickening of the valve and deposit of lymph which, I doubt not, took place about the time of her second admittance to hospital, when the pre-systolic murmur was first heard. The bases of both lungs are in a state of congestion. The heart is larger than it should be in a child of that age, a circumstance attributable to mitral inadequacy.—*April* 28, 1877.

LOCALISATION OF THE CENTRAL LESIONS IN DIPHTHERITIC PARALYSES.

ALTHOUGH these paralyses are well recognised clinically, there is a very incomplete knowledge of them from an anatomical-pathological point of view, especially as regards the alterations in the nervous centres. The peripheral lesions have been more studied, but without constant results. M. Déjérine, in a paper read at the meeting of the International Medical Congress, at Geneva, on the 11th September, quoted the results of five autopsies. In three cases there was a general paralysis, in the other two the paralysis was confined to the upper extremities. The examination of the nerves showed the nerve tubes moniliform; the myeline was converted into droplets, and these degenerative lesions were also found in a certain number of nerve tubes in the anterior roots. The examination of the medulla, by a low power, showed in two cases diffuse lesions characterised by the presence of globular or shrivelled cells, and by the proliferation of nodules of the neuroglia. M. Déjérine contended that diphtheritic paralysis should be included in the list of those paralyses dependent on the central nervous system.—*Gaz. Hebdom.* Oct. 5.

CLINICAL RECORDS.

Select Clinical Reports. By RICHARD RYAN, Medical Officer to the Bailieborough Union Hospitals.

IN *The Dublin Journal of Medical Science* for March last, there appears a case of premature labour artificially induced at the end of the seventh month for the purpose of saving the child's life, but the operation was only partially successful—the child having died twenty-three hours after delivery. As the subject of that paper has been again under my care for a similar reason, it will be useful to give briefly the salient features of her history before describing the steps adopted in this last pregnancy, and the results thereof.

Mrs. M., aged thirty-three, has well marked contraction of the pelvic brim, caused by pressing forwards of the sacro-vertebral angle, and—what I omitted to mention in my former report—a slight folding backwards of the symphyses of the pubic bones. She is stout and healthy, has "cataracta centralis" of both eyes; is one of twins—the other, a boy, being a hunchback.

She had four children at the full time, all dead-born; a miscarriage at the third month; a living child, as already stated, at the seventh month; and now another dead child at the eighth month; making seven pregnancies in six years and a half.

Her last confinement took place on the 5th of October, 1876, and she promised to come back if she became again pregnant. Accordingly I admitted her to hospital on the 17th of September last, she being then, by her own account, eight months pregnant; she arrived at this by reckoning from the period of "quickening," as there was some uncertainty as to the time of the last menstrual period. We had previously agreed to bring on labour at the eighth month, as I thought the greater vitality of the fœtus at that age would more than counterbalance the greater difficulty of delivering an eight than a seven months' child.

September 19th, 10 o'clock a.m.—Had a good night; no pains. However, on examination the os was dilated, easily admitting two fingers, and was so soft and dilatable that I could explore the greater part of the vertex of the child's cranium. Considering the condition favourable for bringing on labour, I ruptured the membranes with a piece of iron-wire and left her,

9 p.m.—Os well relaxed; head still presenting; I can feel an ear; occasional slight pain, but not of a bearing down character; fœtal motions strong.

20th, 10 o'clock a.m.—Slept none, as pains were rather frequent and, latterly, bearing down. On passing my finger into the vagina I found the funis prolapsed, and beating about 80 per minute, but gradually growing less strong, and evidently subject to pressure from the child's head, which presented. Assisted by Dr. Robinson, who kindly gave me the benefit of his experience and advice from the beginning of the case, I endeavoured to apply the short forceps in the antero-posterior diameter of the pelvis, so as to lessen the bi-parietal diameter of the fœtal head by pressure during delivery, but I failed. The fœtal head, being thrown forward by the abnormal sacral promontary, rested on the symphysis pubis, and the perineum and tip of the coccyx would not permit the handle of the forceps blade to be carried sufficiently backward and upward to allow the blade to pass forwards between the head and the upper border of the pubic bones. Whilst I was trying this, I felt the pulsation in the funis become interrupted, although I had done all I could to protect it from pressure by moving it up above the head, and, failing this, by carrying it towards the sacro-iliac angle. We then resolved to perform version at once, as affording the child the only chance. This I did with some difficulty as, on account of the membranes being twenty-four hours ruptured, the liquor amnii had all drained away. Having brought down one leg first, and then the other, I delivered in a short time by making traction in the axis of the brim of the pelvis, or as nearly so as the coccyx would permit—the axis of the inlet being directed nearly horizontally backward. The index finger of the left hand being inserted in the child's mouth was hooked on the lower maxilla, whilst with the fingers of the right passed on either side of the neck, I made traction on the clavicles and scapulæ. By this means one is enabled to make powerful extractive force without running the risk of decapitating the fœtus, as there would be at once felt a want of correspondence between the hand in the mouth, which is drawing the head, and the hand on the shoulders, which is drawing the body, on the faintest sign of a separation between those parts. The child, which appeared to be at the full time, was dead; and there was a deep dint on the parietal bone, corresponding to the sacral promontory, and exactly like the dint on the child's head which I delivered for her, at the full time, about two years previously. Regarding the dint as affording a *cast* of the antero-posterior diameter of the pelvis of the mother, I thought it would afford me a means of ascertaining that diameter, and serve to point out the proper time to induce premature labour should she, as is very probable, again become pregnant.

By making firm pressure with a pair of callipers, such as must have been made during delivery, I found the diameter of the child's head, between the bottom of the bulge and the point opposite, was 2½ inches. For the reason already mentioned, I consider this is the antero-posterior diameter of the maternal pelvis. This conclusion is corroborated by the

fact that when I previously delivered her of the only living child she had, it was a seven months' child, and there was no bulge in its head. Now, according to M. Figueira, the bi-parietal diameter, at the seventh month, is 2 inches 9 lines; if we allow 3 lines of this for the pressure exercised during traction, and it does not seem too much, such a head would just pass through a conjugate diameter of $2\frac{1}{2}$ inches. The bi-parietal diameter, measured from the edge of the bulge to the point opposite was 3 inches; but as the most prominent part of one parietal eminence formed the floor of the bulge, I suppose the bi-parietal diameter of this infant's head to be one or two lines more. This corresponds closely with M. Figueira's table, which gives 3 inches 1 line as the bi-parietal diameter at the eighth month. Assuming, then, that the conjugate diameter of this woman's pelvis is $2\frac{1}{2}$ inches, it will be at once evident that the case is a peculiar one, as this is the least diameter that justifies the induction of premature labour. Her having a living child at seven months would go to prove that it cannot be less, whilst the bulge in the head of her eight months' child indicates that it cannot be more. It is important to determine this, because it will tell the time at which to induce premature labour in her case, and that time, I believe, is at the end of the seventh month. This agrees nearly with Ritgen's table, which indicates the twenty-ninth week as the proper time to induce labour when the conjugate diameter is 2 inches 7 lines.

The child's death in this case I attribute to pressure on the prolapsed funis; but whether, irrespective of this, it would have survived under the pressure that caused the bulge it is difficult to say, though I have certainly seen children survive as deep marks caused by the forceps. On the whole, I think it would have been better to have brought on labour at the end of the seventh month, as I had done previously, or having waited, to have finished the labour on the evening of the 19th, before the funis prolapsed, and when the condition of the os would have permitted. Of course, could I have suspected so untoward an event, I would have delivered at that time. Among the exhaustive list of causes of prolapse of the funis given in Churchill's "Midwifery," deformity of the pelvis is not alluded to, though presentation of the foot or any other part that does not fill up the brim of the pelvis, and irregular shape of the uterus, are mentioned as disposing causes. Now, theoretically, we should expect that such a pelvic deformity as I have described in Mrs. M.'s case, which prevents the head from fitting into the pelvic brim, would favour prolapse; and, as a matter of fact, her case confirms the supposition, because in both of the premature deliveries, and in two out of the four at the full time, prolapse of the funis occurred. This should not be lost sight of in calculating the chances of a living child being born at any future time, or in determining the exact period, after rupturing the membranes, when we ought to interfere to complete parturition. The condition of the os,

both at this time and when I delivered at the seventh month, is worthy of notice. It readily admitted two or three fingers on both occasions, and was so relaxed that the whole hand could be easily introduced. The night previous to my examining her previous to delivery at the seventh month, she had some slight pains, and I believed that they dilated the os, and I expressed an opinion at the time that labour had begun without any interference on our part. But on the last occasion there had been no pains, she had slept all through the night, and yet the os was dilated and relaxed just as it had been before. I cannot offer any explanation of this. It remains only to say that she made a good recovery and went home on the eleventh day.

THE ANTAGONISM BETWEEN ATROPIA AND MORPHIA.

C. Binz poisoned a very young dog with 0·075 morphia. The sensorium was paralysed; the pulse was lowered from 140 to 20, becoming very weak; respirations very shallow, 22 in the minute; and the temperature sank 3–4° below normal. Afterwards ½ mgrm. of sulphate of atropia was subcutaneously injected. The animal awakened in ten minutes with a pulse easily felt of 140; the respirations were powerful, 52; but the temperature remained low. The dog lived. With Heubach, the author performed similar experiments on larger dogs. In the sense, therefore, that atropia can save an animal poisoned (at least to a very considerable extent) with morphia, so that the circulation and respiration are restored, it is impossible to deny that an antagonism does exist between atropia and morphia.—*Deutsche Med. Woch.*, 1877; and *Centralb.*, p. 655, 1877.

J. M. F.

GOITRE.

A great number of cases of the affection have, says *The Boston Med. and Surg. Journal*, applied for treatment at the Pennsylvania Hospital within the past year. The majority of the cases have occurred in women, and have been intimately connected with some uterine trouble. The successful mode of treatment, adopted by Dr. Wm. Pepper, is by hypodermic injections of from 6 to 10 minims of a solution containing ninety-six grains of ergotine to the ounce of distilled water, well into the substance of the enlarged thyroid gland. The injection is repeated two or three times a week for the space of from four to six months, when the gland becomes thoroughly hardened. It begins to shrivel with the stoppage of the injections, and very soon returns to its normal size. Ergotine is of no value in bronchocele, but only in cases of simple enlargement of the thyroid gland. The injection is attended with very little pain, and this is generally local or referable to the origin of the sterno-cleido-mastoid muscle. Injections of ergotine have also been made locally in both tonsillitis and adenitis, with good results.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, M.D., F.K.Q.C.P.

Vital Statistics

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, November 3, 1877.

Towns	Population in 1871	Births Registered	Deaths Registered	Deaths from Zymotic Diseases							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhœa	
Dublin, -	314,666	693	627	1	49	18	2	6	16	13	25·7
Belfast, -	182,082	482	343	—	10	13	—	2	21	21	24·8
Cork, -	91,965	175	144	—	20	—	—	—	6	4	20·5
Limerick, -	44,209	73	68	—	—	—	—	—	2	6	20·0
Derry, -	30,884	55	23	—	—	—	—	—	1	1	9·8
Waterford, -	30,626	51	45	—	1	—	—	—	2	1	19·0
Galway, -	19,692	26	22	—	—	1	—	—	—	—	14·8
Sligo, -	17,285	23	19	—	—	—	1	—	2	1	14·3

Remarks.

With the advancing season the mortality has risen in the larger centres of population—Dublin and Belfast. In the remaining towns it was moderate, or even very low. London had a death-rate of 21·1 per 1,000 of the population annually; Edinburgh, one of 20·2; Glasgow, one of 21·5 per 1,000. Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the death-rate in Dublin was 25·1 per 1,000. The deaths from zymotic affections were 135, compared with 110, 91, and 105 in the three preceding periods. The average number in the corresponding period of the last ten years was 134·8. The epidemic of measles has again become serious—the deaths from it (49) being more than double the number registered in the preceding four-week period. Measles was also very fatal in Cork. Fever and diarrhœa were prevalent and fatal in Belfast. Of the 16 deaths from fever registered in Dublin, 2 were due to typhus, 10 to enteric, and 4 to simple continued fever. The remarkable fatality

of affections of the respiratory organs so characteristic of the present season continues, and is even increasing. These affections caused 125 deaths in Dublin, against an average of 80·4 in the previous ten years. Bronchitis caused 94 deaths (average = 58·0), and pneumonia 22 deaths (average = 12·6). Small-pox was fatal in 45 cases in London, and in 1 unvaccinated case in Dublin. Of the 49 deaths from measles registered in Dublin, 13 occurred in Kingstown and 13 in No. 3 South City (Peter-street) District.

Meteorology.

Abstract of Observations made at Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of October, 1877.

Mean Height of Barometer,	29·928 inches.
Maximal Height of Barometer (on 6th at 9 p.m.),	30·686 ,,
Minimal Height of Barometer (on 14th at 10 p.m.),	28·980 ,,
Mean Dry-bulb Temperature,	50·3°
Mean Wet-bulb Temperature,	48·2°
Mean Dew-point Temperature,	46·1°
Mean Elastic Force (Tension) of Aqueous Vapour,	·312 inch.
Mean Humidity,	86·3 per cent.
Highest Temperature in Shade (on 14th),	66·1°
Lowest Temperature in Shade (on 18th),	36·0°
Lowest Temperature on Grass (Radiation) (on 17th)	28·4°
Mean Amount of Cloud,	51·6 per cent.
Rainfall (on 16 days),	2·153 inches.
General Direction of Wind,	W., S.W., S.

Remarks.

Until Tuesday, the 9th, Ireland remained under the influence of the anticyclone, or system of high barometrical pressure, which had prevailed during the latter part of September. The weather was rainless, with calms or variable airs, and heavy dews by night. A damp and dense fog was observed in Dublin on the morning of the 2nd, and the barometer rose to 30·686 ins. at 9 p.m. of the 6th. A complete break-up of the settled weather previously experienced in Western Europe occurred in the second week. Atmospherical pressure gave way quickly over the British Isles, and a succession of bourrasques, or cyclonic systems, travelled to E. or N.E. across Scotland, where the weather became most inclement—gales with thunder, lightning, hail, rain, and snow being felt generally in that country on the 11th and 12th. In Ireland the weather was not so severe, although it was very broken from the 9th. In the third week very changeable weather prevailed—the alternations in atmospherical pressure and temperature being alike remarkable. On the

14th a deep depression crossed Ireland from S.W. It was preceded by very warm, bright, and dry weather. The barometer sank in Dublin to 28·980 inches by 10 p.m., when a fresh gale was blowing. Next day was very inclement—heavy rain and sleet falling, and the thermometer sinking to 39° at noon, or 27° lower than it had been 24 hours previously. The loftier Dublin mountains became white with snow for the first time this season. During the remainder of the month the barometer was relatively low to the N.W. of the United Kingdom, across which a series of bourrasques travelled towards N.E. or E.N.E., causing fresh S.W. or W. winds and showery weather. A brilliant meteor appeared at 5·50 p.m. of the 19th. Between 5 and 6 p.m. of the 27th vivid flashes of lightning were seen on the S.E. horizon.

PERISCOPE.

Edited by G. F. Duffey, M.D., F.K.Q.C.P.

TREATMENT OF SCROFULOUS OZÆNA.

M. Ory (*La France Méd.*, 1877, p. 387) gives the following formulæ. He remarks that scrofulous ozæna is an affection peculiarly painful and annoying, both to the patient and those who surround him. In order to combat the the odour, Trousseau was accustomed to employ one of the following powders:—

1. ℞ Bismuth. subnit.,
   Talc. venetian., āā ʒiv.—M.
2. ℞ Potassæ chlorat., gr. xxx;
   Sacch. alb. pulv., ʒiv.—M.
3. ℞ Hydrarg. præcip. alb., gr. iv;
   Sacch. alb. pulv., ʒiv.—M.

He recommends that the nasal fossæ should first be thoroughly cleansed, and all crusts, &c., removed. Debout prescribes:—

℞ Bismuth. subnit., ℈iv;
Potassæ chlorat., gr. xvj.—M.

He also recommends the use of sulphur waters together with cod-liver oil and arsenic internally. Percy recommends injections for the nose:—

℞ Tinct. iodi, ♏xlv;
Acid. carbolic., ♏vi;
Glycerini, fʒi;
Aq. destillat., fʒv.—M.

The proportion of carbolic acid may be increased. Gailleton urges the

use of solutions of common salt—one part of salt to one hundred parts of water—by way of injection.

These injections should be abundant, and should be made with the aid of the nasal douche, the nasal passages being throughly cleansed by passing several quarts of water through them three or four times a day.

Lailler, besides the use of general treatment, is in the habit of employing injections with the following solution :—

℞ Chloral hydrat., ʒiss;
Aquæ, fʒii.—M.

The repulsive odour of ozæna is likewise happily neutralised by dilute solutions of hypochlorite of sodium. The following formula containing pitch may also be employed :—

℞ Sodii carb. cryst. pulv., gr. xvi;
Picis liq., gtt. xvi;
Aquæ, fʒiij.—M.

Davy recommends the following astringent injection :—

℞ Tannin, gr. iss;
Glycerini, gtt. xxx;
Aq. destillat.,
Aq. rosæ, āā fʒss.—M.—*Phil. Med. Times.*

ARSENIC IN THE TREATMENT OF MALIGNANT LYMPHOMA.

In 1871, Prof. Billroth published the history of a well-marked case of multiple lymphoma, which was cured in a short space of time by the internal use of Fowler's solution. Since then he has repeatedly employed the same treatment with the most marked success. Extensive tumours in all parts of the body, complicated by masses of hyperplastic glands as large a man's head in the thorax and abdomen, have, under the use of arsenic, disappeared entirely, or at least diminished so much in size that the patient was able to return to work. In some cases the treatment had to be continued a year. The arsenic should be given internally, and by parenchymatous injection into the glands at the same time. Five drops of Fowler's solution, with an equal quantity of tincture of iron or of dialysed iron, are to be given morning and evening on a full stomach. Every second or third day the dose is to be increased by one drop, until symptoms of poisoning make their appearance; this usually does not occur until the patient is taking from 25 to 30 drops of Fowler's solution *pro die*. The dose should then be diminished by a drop every second day, but on no account should the arsenic be stopped immediately. Sometimes the symptoms of poisoning do not set in at all, even when 40 drops of the solution are given *pro die*. In Prof. Billroth's wards the dose is never

allowed to exceed this point. For the parenchymatous injections, pure Fowler's solution is to be used, and as a rule only a few drops should be injected in one spot. Two or three injections may be made every day, provided there be no local irritation. When the glands become inflamed the injections must be discontinued, and moist heat employed. Children are much more tolerant of the arsenic than adults. The treatment sometimes causes sleeplessness, restlessness, an excited state of the nervous system, a melancholic condition, etc., all of which disappear as soon as the dose is diminished. Fever is very generally, but not always, present; it may be remittent or intermittent. The latter, in Prof. Billroth's wards, was observed only in patients who were treated by parenchymatous injections, and always set in about an hour after the injection. During every attack of fever, the glandular tumours became noticeably smaller. The fever never occurs in cases in which no diminution in the size of the tumours takes place; in other words, the arsenic fever is simply a resorption fever. Where the arsenious acid has been injected into a gland, a small spot of necrosis is produced. The glands, however, do not show traces of suppuration or of caseous degeneration; hence it is probable that the arsenic in the circulation acts chemically on the lymphoid cells, which undergo such changes as to become capable of being reabsorbed. The destructive influence of the arsenic on the physiological tissues should be counteracted by good food and by alcohol; if the fever become too violent, the doses should be diminished. The following are the most important conclusions drawn by Dr. Winiwarter, the author of the paper from which the above is taken:—1. The arsenic treatment is efficacious in cases of malignant lymphoma, and also of leukæmia, since it leads to the resorption of the hyperplastic glandular tissue. 2. The good effects of the arsenic are due to its power of inducing in the albuminous tissues, and above all others in the glandular tumours, a destructive process, which prepares them for resorption. 3. The local action of parenchymatous injections, and the arsenic fever assist in producing the diminution in the size of the tumours.—*Allgemeine Med. Cent-Zeit.* May 16, and *N. Y. Med. Record.*

LOCAL TREATMENT OF DYSENTERY.

Two of our American exchanges, *The Boston Med. and Surg. Journal*, and *The Philadelphia Med. Times*, published on October 25th and 27th, respectively, contain notices by two eminent physicians, Dr. Pepper and Dr. H. C. Wood, on the treatment of dysentery by the injection of solutions of nitrate of silver. The method practised by Dr. Pepper is that proposed by the late Professor Simon, and known as "The Gravity Injection" method. The Simon apparatus is very simple, consisting of an ordinary funnel with an elastic tube attached, some six or eight feet in length. The liquid to be injected is poured into the funnel. The

height at which the funnel should be held depends upon the amount of resistance to be overcome and the quantity of the injection. The patient should be brought to the edge of a hard bed, and placed in a position somewhat resembling that for lithotomy, his buttocks resting upon a hard pillow in such a way as to elevate the pelvis and cause the injected fluid naturally to flow downwards and inwards. A well-oiled, smooth, flexible, hard tube, with openings in the side (*e.g.* an œsophageal tube) and a closed end, and connected with the elastic tube, is then introduced from eight to twelve inches into the rectum. In Dr. Pepper's first case a solution of nitrate of silver, varying in strength from eight to fifteen grains to the quart of water, was allowed to flow into the bowel. At first a pint, and later a quart of the solution was injected once or twice daily; afterwards once in two days. The injection was retained for from five to ten minutes. Its retention gave no pain with the exception of a slight burning sensation when the stronger solution was injected. The stools became formed and less bloody very soon after the inception of the new treatment, and in three weeks or so the patient was entirely convalescent, Dr. Wood uses a much stronger solution—a drachm of the nitrate dissolved in three pints of water for each injection. He finds that smaller doses fail almost entirely, thus, perhaps, accounting for the want of success in Dr. Pepper's second case. The solution used should be about the temperature of the body. Dr. Wood gives details of one case of acute dysentery and six cases of dysenteric diarrhœa, four of which had been in hospital from one to seven weeks, and had been unsuccessfully treated with the ordinary remedies for chronic dysentery before the nitrate of silver was used. There was no change of diet (milk) at the time of the injection, and no medicine save a little opium given by the mouth. In four cases two injections, and in one case four injections, sufficed for a cure. In one case the injections failed entirely, but this case was probably one of chronic enteritis. [The treatment here indicated seems deserving of trial, as the results reported, although based on a small series of cases, are certainly encouraging.—Ed. Periscope.]

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